NEW OB/GYN CHAIR • ELIZABETH EDWARDS' RARE PUBLIC APPEARANCE FOR LINEBERGER

Spring 2006

UNC Medical Bulletin

A publication for alumni and friends
of the University of North Carolina at Chapel Hill School of Medicine and UNC Health Care

Reaching new heights

What UNC does well in research, training and patient care

PLUS: The reasons someone should attend UNC's School of Medicine

from the dean

Dear Friends and Alumni:

Spring is a special time of year in North Carolina. It always begins with March Madness, a time of fanatical support and enthusiasm for a number of university teams across our state. There is a rich history of success and achievement on the court; success built through determination, vision and a solid foundation. UNC Health Care has a different kind of team, but one that has a history of big wins, a vision to be the leading public academic health care system, and values that help us serve our community. In many ways, our drive for success mirrors the strong tradition of excellence exhibited on the basketball court each spring.

At the heart of our own winning record are amazing people – researchers, educators and clinicians. Dedicated to improving lives, finding breakthrough treatments and cures, and producing the brightest medical school graduates possible, they are making a difference in North Carolina – and around the world – while expanding the borders of medical discovery.

In this issue of the UNC Medical Bulletin, we have highlighted a handful of meaningful and remarkable achievements by our UNC Health Care team that demonstrate our commitment to a healthier tomorrow. At the risk of being immodest, these are examples of what makes us great:

Patient Care – UNC Health Care provides care that is second-to-none. From leading genetic disease programs in cystic fibrosis to comprehensive hemophilia diagnosis and treatment, patients at UNC Health Care receive world-class and compassionate care for some of the most challenging diseases. The 2009 completion of the new North Carolina Cancer Hospital will greatly expand our ability to fight cancer – one of our state's growing medical challenges – through research, education and superior patient care.

Research – In 2005, UNC surpassed all universities by winning more grants than any other from the National Institutes of Health's Roadmap program. Breakthroughs in robotic surgery, breast imaging and infectious diseases are changing the delivery of care, saving lives and improving patients' quality of life.

Education – We are committed to producing the brightest minds in our School of Medicine, and we recognize not just excellence in research and clinical work, but also in teaching skills. We encourage our students to better understand the world in which they work, and to embrace not just the science of medicine, but the human side as well.

Students educated through the UNC School of Medicine are our legacy for tomorrow, and they are the stewards of our Vision and Values. They demonstrate our values every day: in their residencies around the state, through their volunteer health clinic services, and for many, by remaining in North Carolina to serve us all. Our team continues to grow and excel, and we are excited about what's to come. This spring, let's celebrate our team's accomplishments in meeting the vision for tomorrow through the values we live today.

Sincerely,

Bill Roper

William L. Roper, MD MPH
Dean, UNC School of Medicine
Vice Chancellor for Medical Affairs
CEO, UNC Health Care System
The University of North Carolina at Chapel Hill

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What UNC does best – and why someone should attend the School of Medicine.

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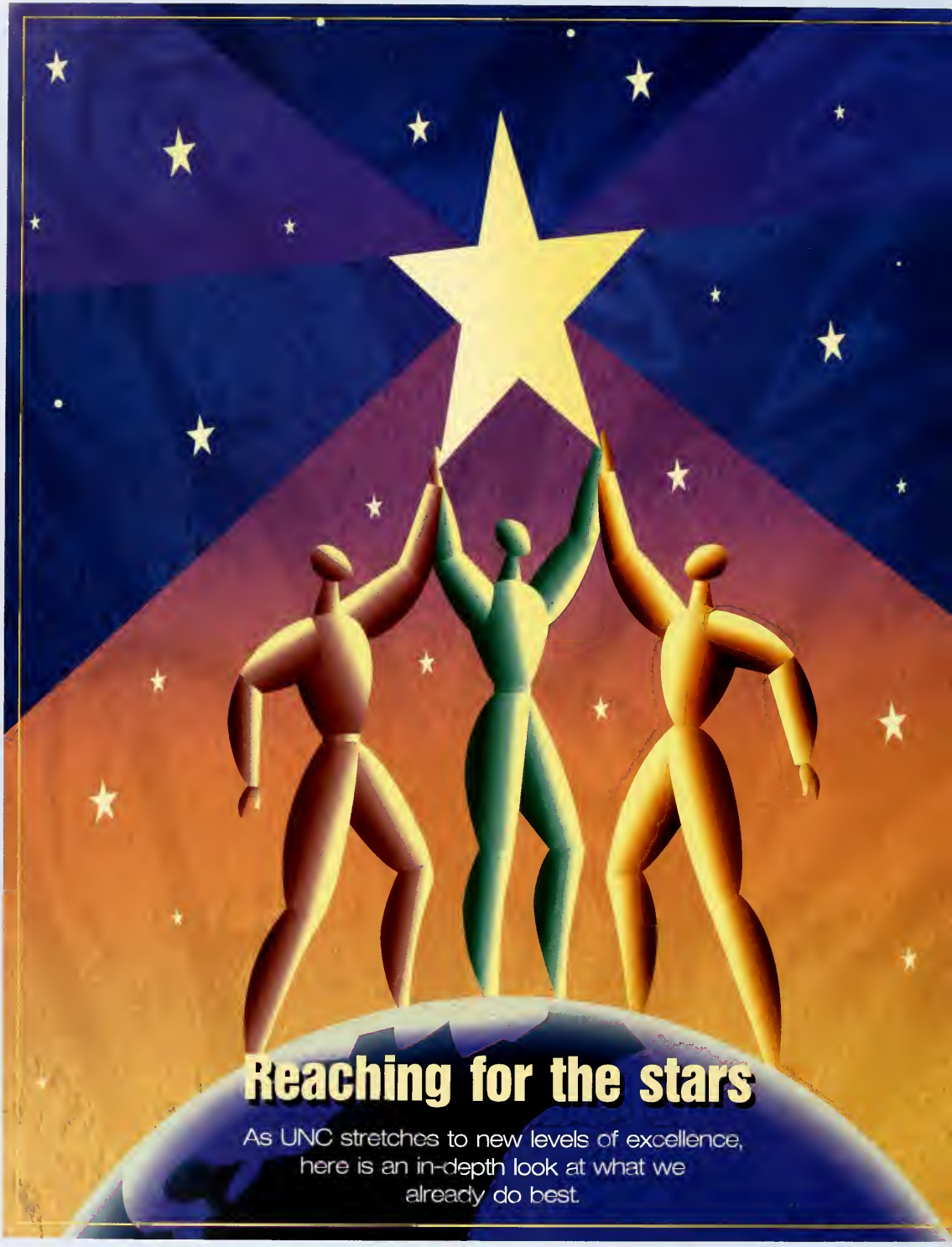
Contributing Writers

Brian Strickland
Photographer



Reaching for the stars

As UNC stretches to new levels of excellence, here is an in-depth look at what we already do best.

Stories by Angela Spivey

Building a skyscraper starts with a solid foundation. As UNC reaches toward becoming the leading national public medical institution, it stands on a foundation made up of decades of achievement in research, education, and clinical care.

"Our aspirations for national leadership are grounded in our mission of service to North Carolina," said William L. Roper, MD, MPH, dean of the School of Medicine and CEO of the UNC Health Care System. "The level of excellence we pursue – in teaching, research and care-giving – defines our national success and is driven by a desire to bring the best medical care to the people we are committed to serve. That's what defines our success and motivates our work."

UNC is one of the few schools in the country considered a bimodal medical school-ranked in the top 20 percent of institutions in both producing primary care physicians and obtaining research funding. A commitment to serve the people of North Carolina and beyond completes the mission. "Our reason for being has always been to serve, and I think that really helps us to excel," said Brian P. Goldstein, MD, MBA, chief of staff and executive associate dean for clinical affairs.

"We believe that what makes us truly special is our recognition that all three of those missions are interwoven to make the others better," said Robert N. Golden, MD, vice dean of the School of Medicine and professor of psychiatry. "We do not want to push forward in one area at the expense of the others. The three missions are like three legs of a stool. They provide stability for reaching toward the top."

The particular achievements that form the building blocks of UNC's foundation are too numerous to name. Following is a list of just a few of those that stand out.

Restoring hearing for more than 20 years. When Harold Pillsbury, MD performed UNC's first cochlear implant in 1984, his highest hope was that the procedure would help adults perceive enough sound to read lips and orient themselves to their environment. Today, even people with the most profound hearing loss are learning to hear and to speak at UNC.

Rather than amplifying sound, a cochlear implant acts as a substitute for damaged or non-working parts of the inner ear (the cochlea). An external device converts sound into an electrical signal. A surgically implanted internal receiver delivers that signal to the brain, where it is interpreted as sound.

UNC has just begun using a new type of implant that helps recipients hear music for the first time. With older implants, patients perceive sound in segmented bits. That's fine for speech but doesn't allow patients to hear music, which requires sounds to be heard in a continuous flow.

UNC's Pediatric Cochlear Implant Program is one of the largest pediatric cochlear implant programs in the southeastern United States. In addition, the W. Paul Biggers Carolina Children's Communicative Disorders Program provides not only cochlear implants and hearing aids but also physician, audiological, and speech services to North Carolina children whose families may not be able to afford them.

Both UNC's adult and pediatric cochlear implant programs are based at the Department of Otolaryngology/Head and Neck Surgery.

Encouraging collaboration. Many schools and universities give lip service to multidisciplinary collaboration, but at UNC, working together is ingrained into the culture. "Doctors, nurses, staff, and medical students are able to very effectively collaborate on behalf of patients," said Dr. Goldstein. "There's a high expectation that people are going to work together. Because of that culture, we have ended up continuing to select people who fit in well here and who are willing to practice that way."

The Lineberger Comprehensive Cancer Center, for example, provides multidisciplinary programs for many types of cancer, which means patients see numerous medical specialists in one place, and often in one visit. The cancer center brings together faculty members from more than 25 different departments to conduct research and provide patient care. These faculty come from all five health sciences schools – Medicine, Public Health, Dentistry, Nursing and Pharmacy – as well as the College of Arts and Sciences and other schools.

Even informal conversation among faculty in divergent fields can lead to collaboration, and UNC fosters such interaction through the close physical proximity of the SOM to UNC's undergraduate campus, the other health sciences schools, and the main library, said Cheryl McCartney, MD, executive associate dean for medical education.

Transcending boundaries to create a new "roadmap" for medical research. In 2005, scientists from UNC's health sciences schools won more grants from the National Institutes of Health's competitive Roadmap program than any other university in the nation. The 2005 grants, eight in all, were awarded to scientists in the Schools of Medicine, Pharmacy, and Public Health.

UNC's culture of multidisciplinary collaboration makes UNC a natural to excel in the roadmap program, which encourages researchers to attack difficult problems by collaborating across disciplines and using sophisticated computational techniques and informatics. Most of UNC's new grants are part of the NIH's "Roadmap for Medical Research," a series of initiatives designed to transform the nation's medical research capabilities and speed the movement of research discoveries from the lab bench to the bedside.

Robotics. Using robotics to make surgery less invasive, more precise. A new surgical assistant, the da Vinci Surgical System, has scrubbed in at UNC Hospitals, assisting in such procedures as hysterectomies for endometrial and cervical cancers and prostate removal. UNC is currently the only gynecological oncology program in the Southeast using the system.

The da Vinci system's three arms can insert instruments into an incision as small as 1/2 of an inch, but their wrist-like bending movements allow the surgeon to maintain precise control, as if he were performing an open surgery. The robot's cameras give a three-dimensional view of the operating field and the ability to zoom in and out. UNC doctors have found that patients who undergo the robotic operation return to normal activities more quickly, leave the hospital sooner, and have less pain and fewer complications than patients who have conventional surgery.

Improving breast imaging and cancer profiling to save lives. The Breast Imaging Lab, led by Etta Pisano, MD, Professor of Radiology and Biomedical Engineering, works to improve technology for breast cancer diagnosis and treatment. Most recently, Dr. Pisano announced results of a large study which found that digital mammography may detect significantly more cancers in certain women.

Investigators led by Charles Perou, PhD, assistant

Photos by Brian Strickland

Daniel von Allmen, MD, has put UNC's da Vinci surgical robot to good use.

professor of genetics, are classifying tumors into subtypes using gene-expression patterns. They look for these patterns by using tools called DNA microarrays, which allows them to examine thousands of genes at one time.

Dr. Perou's group aims to understand the pathways that are altered within each tumor subtype and to implement these findings into standard clinical practice. In 2004, he discovered a distinct subtype of aggressive breast tumor that lacks the only two defined targets for chemotherapy (estrogen receptor and HER2 protein). The finding showed that the roughly 15 percent of women with this type of breast cancer have a poorer prognosis than women with other forms of the disease.

UNC's cancer program is anchored by the patient treatment, research, professional training, and cancer-prevention education conducted by the Lineberger Comprehensive Cancer Center, one of only eight Specialized Programs of Research Excellence (SPORE) in breast cancer in the United States. UNC is ranked among the nation's 50 best hospitals in the nation for cancer treatment by *U.S. News and World Report*. UNC also has a second SPORE designation with its GI cancer work, led by Joel Tepper, MD.

The school's commitment to fighting cancer continues with construction of the new North Carolina Cancer Hospital, expected to be complete in 2009. The new hospital will replace a cancer treatment facility originally built in the 1950s and will also serve as the clinical home for the Lineberger center.

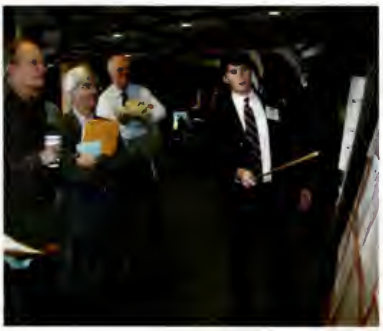
Offering hope for Cystic Fibrosis patients. Led by Cystic Fibrosis (CF) research pioneer Richard Boucher, MD, who is regarded as one of the world's experts in CF research and treatment, the large, multidisciplinary group at UNC's Cystic Fibrosis/Pulmonary Research and Treatment Center work to understand the mechanism of the disease and improve therapies. Recent developments include creating an improved mouse model which shows how the disease damages the lungs, and a 2005 study which showed that an inexpensive treatment, hypertonic saline, results in better outcomes for patients.

The CF Clinical Care center is one of the largest CF clinical programs in the country, with more than 500 patients in its pediatric and adult programs. Adult and pediatric CF patients are cared for in separate, multidisciplinary CF clinics by doctors who are leading the search for new treatments. These doctors are supported by physical therapists, nutritionists, respiratory therapists, nurses, social workers, and psychologists with special expertise in CF.

Working to live in balance with a microbial world. Microorganisms will always evolve and produce disease, making infectious diseases among the most critical health problems for people in all parts of the world. At UNC's Center for Infectious Diseases, headed by Mike Cohen, MD, scientists and clinicians from clinical infectious disease, microbiology, epidemiology and public health combine research efforts to understand evolution, prevention and treatment of infectious diseases. These faculty also participate in training, education, and clinical care and are extensively involved in prevention programs such as vaccination outreach and civilian biodefense preparedness.

A standout is the center's research, prevention and education work to fight sexually transmitted diseases, including HIV and AIDS. UNC has been conducting HIV/STD research in Malawi, Africa, since 1990, and the program has grown into a partnership with the Malawi Ministry of Health and Population to design programs to control the spread of HIV and STDs, develop and test country-specific STD guidelines, and facilitate care in STD Clinics. UNC now provides free HIV testing and counseling to outpatients at the Kamuzu Central Hospital in Malawi.

Pioneering research and treatment of bleeding disorders. UNC's Harold R. Roberts Comprehensive Hemophilia Diagnostic and Treatment Center is the longest running of the Comprehensive Hemophilia Treatment centers funded by the Centers for Disease Control and Prevention. Members of the center provide comprehensive care for patients with congenital and acquired bleeding disorders. Services include education about managing bleeding disorders, training and support of home therapy for hemophilia, studies of new products and treatments, referral to



Teaching: Memorization is out, and learning how to find and interpret knowledge is in.

Medical education:
A fundamental reason for being

Medical education is just one of three missions of the UNC School of Medicine. But you could never call it a third wheel.

"We are committed to medical student education as a fundamental purpose for being here," said Robert N. Golden, MD, vice dean of the School of Medicine and professor and former chair of Psychiatry.

"At too many medical schools, teaching is considered less glamorous than being either a master researcher or a master clinician," Dr. Golden said. "But here, being a master teacher is really respected." Teaching excellence is recognized through such programs as the Medical Alumni distinguished teaching professorships, which are endowed four-year term professorships funded by the Medical Alumni Loyalty Fund.

Teaching has been energized by the SOM's recently revised curriculum, which is designed to give students the skills to navigate an ever-changing field. "We want to teach students how to learn and how to question current dogma," said Dr. Golden. "So whether they pursue careers in clinical practice or in academics, they will always be at the cutting edge."

Memorization is out, and learning how to find and interpret knowledge is in, explains Cheryl F. McCartney, MD, executive associate dean for medical education. "We're no longer attempting, as we did in earlier years, to cover everything. But we teach people how they can get new information at the time they need to know it," Dr. McCartney said.

Even in basic science courses such as anatomy, the new curriculum emphasizes an interdisciplinary approach that from the beginning shows students how a course would be used in their clinical work, Dr. McCartney said. Anatomy is now collaboratively taught by anatomy teachers, surgeons, embryologists, and radiologists. Students are tested using clinical vignettes.

Only a handful of medical schools devote an entire department to helping students understand the human and social implications of their work, but UNC's Department of Social Medicine has been doing just that since 1977. A 2004 Institute of Medicine report on improving medical education cited UNC's department for its curriculum innovation and faculty expertise in instructing medical students in behavioral and social sciences.

Many students are drawn to the medical school's emphasis on the physician as someone who not only serves individual patients but who also strives to improve health care for underserved groups, said Dr. McCartney. "Our commitment to service is part of our culture," she said.

One of many service opportunities is the Student Health Action Coalition (SHAC) Clinic. In operation since 1967, it's the country's oldest continually operated student-run health care clinic for indigent populations. Free of charge, the SHAC clinic offers services such as physical exams, routine vaccinations, acute care for minor medical problems, and men's and women's health examinations.

The School of Medicine's emphasis on all aspects of medicine attracts students with a variety of goals, said Georgette Dent, MD, associate dean for student affairs. About 60 percent of UNC's medical students conduct a research project while in school. One fourth of the current medical students are also working on master's degrees from UNC's School of Public Health.

"Few institutions have the same wide spectrum of opportunities—community service, public health, research, and clinical experience," said Dr. Dent. "We really have it all."

UNC opened an Endoscopy Center last year.

physicians and other providers familiar with bleeding disorders, and consultative and diagnostic services for physicians.

The center is named for Harold R. Roberts, MD, Kenan Professor of Pathology and Laboratory Medicine, whose research on blood factor VII and coagulation was critical to the development of effective drugs to treat hemophilia.

Uncovering the causes and markers of digestive disorders. UNC's Division of Gastroenterology and Hepatology, headed by Robert Sandler, MD, provides specialized, compassionate care for patients with gastrointestinal, liver and nutritional diseases. The division is a national leader in research, including Dr. Sandler's research in colon cancer etiology, screening and prevention, and intermediate markers of colon cancer risk. He is the principal investigator of the North Carolina Colon Cancer Study, a population-based, case-control study exploring environmental, lifestyle and medical factors of colon cancer.

The UNC Center for Functional GI & Motility Disorders works to advance the biopsychosocial understanding and treatment of functional gastrointestinal and motility disorders. Founded in 1994 by co-directors Douglas A. Drossman, MD, and William E. Whitehead, PhD, the center has evolved into a multidisciplinary patient care, research, training, and public education initiative.

Research accomplishments include Dr. Drossman's development and validation of a test to measure the quality of life of sufferers of Irritable Bowel Syndrome (IBS) as well as more than 15 years of study of sexual and physical abuse as a hidden cause of some cases of IBS. Dr. Whitehead is recognized internationally for his research and teaching on constipation, fecal incontinence, and irritable bowel syndrome.

Dr. R. Balfour Sartor, Margaret W. and Lorimer W. Midgett distinguished professor of digestive diseases and nutrition, directs UNC's Multidisciplinary Center for Inflammatory Bowel Disease and Treatment, which seeks to understand the etiology and pathogenesis of inflammatory bowel diseases and to apply that translational research to effective clinical management. Dr. Sartor leads a multidisciplinary research effort funded by the NIH to find ways to use non-invasive imaging such as CT scanning and MRI to assess inflammation in Chrohn's disease and colitis

Educating students while improving health care statewide. The North Carolina Area Health Education Centers (AHEC) Program, administered by the School of Medicine, is a national model, anchored by nine regional AHECs that provide community-based training via student residencies. At any one time, about 30 to 40 percent of UNC's medical students are in rotation throughout the state via AHEC's system of community hospitals, said Dr. McCartney.

AHEC meets the primary health care needs of the state by improving the supply, distribution and quality of health care professionals. During the past 25 years, 67 percent of the AHEC-trained family medicine residents have remained in the state to practice. Of the 2,347 family physicians in the state, 40 percent have been trained in a residency supported by AHEC funds. UNC's Department of Family Medicine is chaired by Warren Newton, MD.

The AHEC program also offers services to practicing health professionals, including continuing education, technical assistance, and a digital library of quality health information resources.

"I am amazed and gratified every day to work with the most committed team in health care," Dr. Roper said. "UNC's success can be measured by its impact on improving the health of millions of people in North Carolina and across the world. In all that we do, the common theme is a commitment to service. That commitment makes us different. And that commitment is certainly making a difference."

The quilt debuted at the 2001 dedication of the new N.C. Children's and Women's Hospitals.

Have blanket, will travel

100 County Quilt continues tour of North Carolina

By Will Arey

Since 2001, thousands of women and children from across North Carolina have made the trip to Chapel Hill for comprehensive and cutting edge health care at the N.C. Children's and Women's Hospitals.

Many of those visitors would be shocked to learn that North Carolina's 100 County Quilt, first displayed at the Sept. 8, 2001, dedication of the Children's and Women's Hospitals, is nowhere to be found at UNC Hospitals.

Why is that?

In the almost five years since it made its debut at the dedication ceremony of the Children's and Women's Hospitals, the 100 County Quilt has been on a continuous journey around the state.

From the mountains to the beaches and in a few spots in between, the quilt has traveled the state under the direction of Joy Javits, coordinator of the 100 County Quilt tour.

"It's a goodwill tour," Javits said of the quilt's continuing movement around North Carolina. "Everywhere the quilt goes, it provides the homespun image of not only the beauty of the state, but also the talent of the quilters in every county."

Javits took on the tour with fervor, making what she downplays as "a few thousand phone calls" along the way. "I've also worked closely with the N.C. Arts Council, libraries and quilter's associations across the state," she said. "Everyone just marvels at the size and magnificence of the quilt."

But the quilt, which measures 15-by-9 feet, isn't Javits' only traveling companion. When she arrives at a new location to display the quilt, Javits also brings along the poems and drawings of each county's flag that were first on display at the dedication of the Children's and Women's Hospitals in 2001.

Leading up to the dedication of the two new Hospitals in 2001, each county in North Carolina was asked to submit a 10-inch quilt square, an original poem and a drawing of the county flag. The combination of the quilt, poems and artwork was quite powerful during the dedication, Javits said.

"Each of the artistic gifts is wonderful," said Javits, who is working with a student at UNC to compile the poems and drawings into a mini-book format. "The art all says so much about North Carolina and its meaning to the people."

In its fifth year of touring, the quilt has been formally displayed in more than 15 different counties, often for months at a time. The quilt has also been the focal point of receptions, rallies and more than one ice cream social.

At some point, the quilt will become the focal point of even more attention when it returns to its home at UNC Hospitals and takes up permanent residence along the Eric B. Munson Concourse. Until then, the quilt will continue its tour around the Tar Heel state.

If you are interested in having the 100-County Quilt visit your county, contact Joy Javits at joy@in-the-public-eye.com.

Striving for excellence

Daniel Clarke-Pearson, MD, sees himself as 'team player' and wants to raise stature of UNC's OB/GYN department

By Tom Hughes

When he was in high school in the 1960s, Daniel Clarke-Pearson, MD, was an Eagle Scout, won the California state science fair and was a football star.

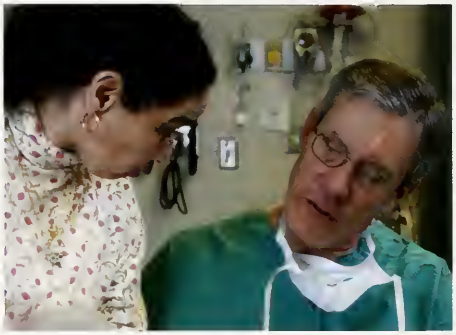
In football he was so good, in fact, that during his senior year Dan Pearson, as he was known back then, was named the No. 1 high school football player in southern California. By the time he graduated, he had football scholarship offers in hand from UCLA, the University of Southern California, Stanford and the U.S. Naval Academy.

But he chose instead to go to Harvard. There he played tackle for a school that is very highly regarded for academics, but whose football program is, to put it politely, much less impressive than those at the schools he turned down. (One of his football teammates at Harvard was Tommy Lee Jones, now a famous movie actor, who played guard.)

"I decided that I wasn't going to be a professional football player over the long run," Dr. Clarke-Pearson explained recently, "so why spend my whole college career lifting weights and training? In retrospect, that was a good choice on my part." Indeed. It was a decision that set him on the path that led ultimately to where he is now: the new Robert A. Ross Professor and Chair of the Department of Obstetrics and Gynecology in the UNC School of Medicine.

After earning his bachelor's degree in biology (with a minor in art history) at Harvard in 1970, he spent a year as a technician in a vascular surgery laboratory at a Harvard-affiliated hospital. "That was the start of my interest in the prevention of postoperative venous thromboembolism," Dr. Clarke-Pearson said, the area of clinical research which has been most prominent in his academic career. During this period of his life he met the woman who would later become his wife: Kathleen Clarke. When they married, the two combined their last names as Clarke-Pearson. (Kathleen Clarke-Pearson, MD, is a pediatrician who earned her medical degree at UNC in 1985.)

After a year in the laboratory, he went to medical school at Case Western Reserve University in Cleveland and then came to Duke for his residency in obstetrics and gynecology and a fellowship in gynecologic oncology. He joined the faculty at Duke after his fellowship, where, but for two years at the University of Illiinois, he has spent his entire academic career before coming to UNC.



Daniel L. "Dan" Clarke-Pearson, MD

Hometown: Indio, Calif.

Undergraduate education: Harvard University, BA in Biology (1970).

Medical education: MD, Case Western Reserve University School of Medicine (1975); Residency in Obstetrics and Gynecology (1975-1979) and Fellowship in Gynecologic Oncology (1979-1981) at Duke University Medical Center.

Current position: Robert A. Ross Professor and Chair of the Department of Obstetrics and Gynecology in the UNC School of Medicine.

Prior academic positions: Director of Gynecologic Oncology and James M. Ingram Professor of Gynecologic Oncology, Duke University Medical Center (1987-2005); Director of Gynecology and Gynecologic Oncology, University of Illinois at Chicago School of Medicine (1984-1987); Assistant and Associate Professor of Obstetrics and Gynecology, Duke University Medical Center (1980-1984).

Recent honors and awards: Invited Panel Member, International Consensus Conference of the Prevention of Venous Thromboembolism (2004); ACOG Roy Pitkin/Elsevier Award, for one of the top four papers published annually in Obstetrics & Gynecology (2002); listed in America's Top Doctors (2001-2005).

Professional accomplishments: Dr. Clarke-Pearson has published over 180 peer reviewed publications and over 50 book chapters. He has co-authored two textbooks of gynecology: Green's Gynecology: Essentials of Clinical Practice (1990) and Gynecologic, Obstetric and Related Surgery (2000). Dr. Clarke-Pearson's research in the prevention and management of postoperative venous thromboembolism is recognized internationally. He has also published widely in clinical gynecologic oncology and the prevention of postoperative complications. In his 18 years as Chief of the Division of Gynecologic Oncology at Duke, the division grew to have a faculty of 6 physicians and 3 fellows making major contributions in clinical and translational research.

Family: Married to Kathleen Clarke-Pearson, MD, a pediatrician who graduated from the UNC School of Medicine in 1985. They have three children: Emily, 27, a UNC alumna who is currently a third-year medical student at Brown University; Mary, 25, a teaching fellow in New York who is currently applying for admission to law school; and Mike, 23, a senior biology major at Brown University. They also had an older son, Don, who is deceased.

Hobbies/Personal Interests: Dr. Clarke-Pearson enjoys backpacking (especially in the Tetons and Glacier National Park), working out, spending time hiking and other outdoor activities near his house in Ashe County, and cooking for family and friends.

Dr. Clarke-Pearson assumed the chair's position at UNC in the beginning of the 2005-2006 academic year, after serving 18 years as chief of Duke's Division of Gynecologic Oncology. During his tenure at Duke, the division grew to have a faculty of six physicians and three fellows, who together were making major contributions in clinical and translational research. His pre-UNC career also included two years on the medical faculty at the University of Illinois at Chicago.

Before coming to UNC, Dr. Clarke-Pearson had earned a reputation as one of the top academic physicians in his specialty. He's been listed in America's Top Doctors every year since 2001, and in 2002 he received the ACOG Roy Pitkin/Elsevier Award, for authoring one of the top four papers published in the journal Obstetrics & Gynecology. Dr. Clarke-Pearson is an internationally recognized leader in research to prevent venous thrombosis following gynecologic surgery and is one of only a few Americans to be invited to be on the international consensus panel on the prevention of venous thrombosis.

While working at Duke, Dr. Clarke-Pearson said, he was aware of and greatly respected the work being done in UNC's OB/GYN department. When the chair's job at UNC came open with the departure of Valerie Parisi, MD, he saw it as a great opportunity.

"I think it's an exciting time to be chair of this department," he said. "The biggest factor that attracted me to UNC is the opportunity to lead a department which is well respected and has many areas of excellence. I think this department is very stable and the institution behind it is excellent. As chair, I am enjoying the opportunity to work with our faculty to build and grow new programs which I expect to have a significant impact on women's health care," he said.

Some of the areas of excellence that Dr. Clarke-Pearson sees within the department include:

- Minimally invasive surgery, including robotic surgery, being per formed by UNC surgeons such as John Boggess, MD, and John Steege, MD. "UNC is clearly the national leader in this exciting field of surgery. With our expertise, we are poised to provide a new level of patient care, to teach others these techniques and to lead in this area of surgical research," he said.
- The pelvic pain program developed by Dr. Steege, which Dr. Clarke-Pearson sees an an "another area where UNC is an international leader. We have the opportunity to have something very special at UNC that will really help a lot of women with pelvic pain."
- "Our residency and fellowship training programs are highly sought after, and I am impressed with the level of faculty interest and involvement in education. It is clear that we are training the leaders of tomorrow," Dr. Clarke-Pearson noted.
- Dr. Clarke-Pearson, who is a gynecologic oncologist, feels that gynecologic cancer care is one of the traditional pillars of this department. "Dr. Wesley Fowler is the leader of a group that provides comprehensive care which is cutting edge. The fantastic facilities of the Women's Hospital are a wonderful compliment to our dedicated staff."
- The maternal-fetal medicine program, includes world-class ultrasound and minimally invasive fetal surgery.
- Clinical trials in pelvic reconstructive surgery led by Anthony Visco, MD.
- Research in women's health issues being done by faculty such as David Grimes, MD; Katherine Hartmann, MD, PhD; and John Thorp, MD.

"The Department of Obstetrics and Gynecology at UNC has all these excellent programs that are already up and running," Dr. Clarke-Pearson said. "I want to help them grow even more, and then find other opportunities that will position us as a leader. Dean Roper wants UNC to be the No. 1 public academic medical center. I think this department has the potential to be the No. 1 public department in OB/GYN."

Photos by Brian Strickland

One of the areas that Dr. Clarke-Pearson hopes to help grow is translational research in reproductive endocrinology, maternal-fetal medicine and gynecologic cancer. In addition, he wants to expand the department's clinical outreach operations in Raleigh and Greensboro. For the last 10 years, Dr. Clarke-Pearson has provided gynecologic oncology care at the Moses Cone Health System's Regional Cancer Center in Greensboro. He is continuing to do so now and plans for additional UNC faculty to join him there.

"But I'm certainly not going to bring this department along all by myself," he added. "There are a lot of great people here that I have the opportunity to collaborate with and to bring together as a team.

"It sort of goes back to my football days, of being a team player," he said. "The tackle on a football team doesn't get much credit, but you recognize what your role is, and if you fulfill that, and if everybody else pulls together, then you can be a winner. I think that's what this department will be."

From bench to boardroom

UNC School of Medicine alumnus Richard Murray, PhD, transitioned from laboratory researcher to biotech business executive

Photo by Brian Strickland

Richard Murray, PhD

Hometown: Norwood, Mass.

Undergraduate education: BS, Microbiology, University of Massachusetts (1983).

Graduate education: PhD, University of North Carolina at Chapel Hill (1988); Postdoctoral fellow, DNAX Research Institute, Palo Alto, Calif. (1988-1991).

Current position: Chief Scientific and Technical Officer and Senior Vice President, Research and Product Development, PDL BioPharma Inc., Fremont, Calif.

Prior professional positions: Vice President of Research, PDL BioPharma Inc., (2003-2004); Co-Founder and Vice President of Research, Eos Biotechnology, Inc. (1998-2003); Staff Scientist and Senior Staff Scientist, DNAX Research Institute (1991-1998).

Professional accomplishments: Dr. Murray has authored more than 50 peer-reviewed journal publications, review articles and book chapters. He also has several patented inventions to his credit. These include one for methods of diagnosing and screening for modulators of tissue remodeling and treating related diseases and another for methods for using anti-alpha5beta1 antibodies to kill cancer cells.

Family: Married to Stacie Dalrymple, PhD, with two children, Conor (9) and Shane (2).

Hobbies/Personal Interests: Wine, classic cars, and family sports activities.

By Tom Hughes

Richard Murray, PhD '88, first came to UNC to begin his PhD studies in immunology in 1983, after working as a technician at a biotechnology company in the Boston area. While at UNC, the Massachusetts native earned a reputation as a promising doctoral candidate, headed towards a brilliant career in scientific research.

After earning his PhD, Dr. Murray worked as a bench scientist for more than a decade, during which time his accomplishments included figuring out the cellular basis of a rare lung disease. But for the last eight years he has worked primarily as a business executive, first as a co-founder of a biotech company, then as a vice president of a larger company that bought his startup. Since April 2004, Dr. Murray has served as chief scientific and technical officer and senior vice president of research and product development for PDL BioPharma, Inc. in Fremont, Calif.

"He was really smart," recalls Jeffrey Frelinger, PhD, who is the School of Medicine's chair of Microbiology and Immunology and was Dr. Murray's academic advisor. "He worked on a really hard problem that had a big impact, and he was really fun to have in the lab."

That "really hard problem" was trying to understand the molecular basis of how the immune system cells in the body recognize something as being foreign. To attack this issue in his doctoral thesis, Murray applied a cutting-edge laboratory research technique developed by then-UNC faculty member Clyde Hutchison, PhD, called "random mutagenesis by oligonucleotides," or RAMBO for short. In essence, this technique is a way of synthesizing a very large set of mutant genes all at once. In other words, "making genes in test tubes," as Dr. Frelinger described it.

"Not only was this a really good idea, in terms of the intellectual content, it turned out to be a technical tour de force," Dr. Frelinger said. "We learned a great many things that we didn't want to know about, including flaws in the way that we were synthesizing oligonucleotides, the way everybody synthesized oligonucleotides at the time, how to assemble genes, and those sorts of things, how to do the real molecular biology. Rich was just terrific at both the conceptual and the technical parts of this."

Dr. Murray's thesis project led to the publication of an article in the Proceedings of the National Academy of Sciences in 1988, the same year he earned his PhD. He was listed as first author, with his mentors, Drs. Frelinger and Hutchison, listed as co-authors. For a young scientist fresh out of PhD school, this was the equivalent of a home run, slam dunk and touchdown all in one. The approach that Dr. Murray pioneered has since been followed by many other researchers, including several trained in Dr. Frelinger's lab.

The next stop for Dr. Murray was the DNAX Research Institute in Palo Alto, Calif. He started there as a postdoctoral fellow in 1988, was hired as a staff scientist in 1991 and promoted to senior staff scientist in 1996. He worked on many projects during his 10 years at DNAX, but the one that is perhaps most significant was his research into a rare lung disease called pulmonary alveolar proteinosis, or PAP.

Dr. Murray led a team of researchers in his lab at DNAX that reached a groundbreaking understanding of the cellular basis for PAP. In the course of their work, they discovered, much to their surprise, that giving bone marrow transplants to mice with a very similar lung disease cured them of the disorder.

"The basis of that surprise was the recognition that certain cells that participate in the respiratory system are actually derived from the bone marrow," Dr. Murray said in a recent interview. "So we could ultimately replace those defective cells by a bone marrow transplant and reinstitute appropriate respiratory function." The results of that research were published in the Journal of Experimental Medicine in 1996, with Dr. Murray listed as corresponding author.

While he found DNAX to be a very pleasant work environment, Dr. Murray said, he eventually became attracted to the idea of helping to launch a brand new company. Starting in March 1998, he served as co-founder and vice president in charge of research for Eos Biotechnology, Inc.

The new company's goal "was to create innovative therapeutics and put those into unmet medical needs in the arena of oncology and immunology," Dr. Murray said. After five years in business, Eos had an anti-cancer drug called volociximab, better known as M200, almost ready to begin clinical trials for the treatment of solid tumors.

But by that time, Eos found that the "private equity markets were becoming difficult." As a result, Dr. Murray and the other co-founders came to realize "the need to be part of a larger organization, that really had a clear vision for the future, that was excited about innovative product development, that had infrastructure in place and much, more capability than Eos had as a small fledgling company."

They found a fit, and a buyer, in PDL BioPharma. PDL's acquisition of Eos was very beneficial financially for Dr. Murray and the other Eos stockholders. But that was not their primary motivation for the sale, he said.

"I think the concern at that time was less counting stock, if you will, than ensuring that we had a means of driving programs forward that meant a lot to people who took the risk at Eos at the time," he said. "As a result of the sale, our people had a place to work and were able to continue to push their programs forward through a company that was committed to the same vision."

PDL, after acquiring Eos, moved forward with clinical trials of M200. Three Phase II clinical trials of M200 in renal cell carcinoma, melanoma and pancreatic cancers were initiated in the first half of 2005. Preliminary results from these studies will be presented this year.

This career would not have been possible for him, Dr. Murray said, without the scientific education and training he received at UNC.

"As I reflect back on UNC," he said, "I think the very positive aspect of that was a very contemporary scientific environment. I can reflect back on that and not view that as a particularly bureaucratic organization in terms of running the science there. So I view that very favorably, as I could compare that to other institutions that I've been involved with."

However, Dr. Murray thinks that UNC's School of Medicine and other similar institutions could, and should, do a better job of preparing PhD students in the sciences for careers in industry, since many of them choose that route instead of an academic career path. That goal could be met, he said, with a separate biotechnology program for students aiming towards careers in industry.

He remains passionately interested in the science being conducted at PDL, Dr. Murray said, but now his efforts are directed primarily at running the business.

"Science has been the root for me," he said. "I really love the science, and talking with the scientists about the discoveries that we're making here.

"But what has really become the majority of my job is more at the executive level, in terms of helping to manage the business, helping to manage the functional areas, and really helping direct the company towards its future vision."

UNC: Genetics accounts for more than half of anorexia liability

BULIK

A new study led by UNC researchers estimates that 56 percent of the liability for developing anorexia nervosa is determined by genetics.

In addition, the study found that the personality trait of "neuroticism" (a tendency to be anxious and depressed) earlier in life is a significant factor associated with development of the eating disorder later.

Anorexia nervosa is a psychiatric illness characterized by an individual's refusal to maintain a minimally acceptable body weight, intense fear of weight gain and a distorted body image. It occurs primarily among females in adolescence and young adulthood and is associated with the highest mortality rate of any mental disorder.

This study is the first published in the medical literature to estimate how much liability for developing anorexia nervosa is due to genetics, and the first to find a statistically significant association between the prospective risk factor of neuroticism and later development of anorexia, said Cynthia M. Bulik, PhD, lead author of the study, published in the March issue of the *Archives of General Psychiatry*.

"What this study shows is that anorexia nervosa is moderately heritable and may be predicted by the presence of early neuroticism, which reflects proneness to depression and anxiety," Dr. Bulik said. "Fifty-six percent heritability — that's a fairly large contribution of genes. The remaining liability is due to environmental factors."

Dr. Bulik is the William R. and Jeanne H. Jordan distinguished professor of eating disorders in UNC's School of Medicine and director of the UNC Eating Disorders Program at UNC Hospitals. She also is a professor of nutrition, a department housed in the schools of public health and medicine, and holds the only endowed professorship in eating disorders nationwide.

The reason she and her co-authors reached these conclusions where previous studies could not, Dr. Bulik said, is that their study was based on data obtained from screening a very large sample of twins. Their sample, from the Swedish Twin Registry, consisted of 31,406 individuals born between 1935 and 1958. None of the previous studies had samples nearly as large, Dr. Bulik said.

Working with colleagues at the Karolinska Institute in Stockholm, Dr. Bulik's team screened members of the sample for a range of disorders, including anorexia nervosa, using diagnostic criteria from the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition." Information from sample members collected in 1972-1973 was used to examine prospective risk factors.

About half of the members of the sample were monozygotic, or identical, twin pairs, who are genetically identical. The other half were dizygotic, or fraternal, twins, who are no more similar genetically than siblings who are not twins.

"In this big population, we compared the group of monozygotic twins with the group of dizygotic twins and asked the question, 'How often do both twins in a twin pair have the disorder?' If you find that both members of monozygotic twin pairs have the disorder more frequently than both members of dizygotic twin pairs, that suggests there's a genetic component to the disorder," Dr. Bulik said.

That's what the researchers found, she added.

"It was more common for both members of identical twin pairs to have it than for both members of fraternal twin pairs."

A statistical analysis of the data they collected from the twins in the sample estimated that genetics accounted for 56 percent of the liability for developing anorexia within that population.

Since the Swedish Twin Registry contained data on sample members dating back to 1972-1973, Dr. Bulik's team also was able to determine the factors or features that these people had earlier in life that predicted they were going to develop anorexia nervosa later.

"What we found was that neuroticism, measured in 1973, was the strongest predictor of the development of anorexia nervosa later in life," Dr. Bulik said. Other prospective risk factors that were examined, including a low body mass index and excessive exercise levels, were not found to be predictive.

One of the next steps, Dr. Bulik said, is to put these two pieces of information together to figure out exactly what is inherited. "We suggest that there are some basic biological differences between people with anorexia nervosa and everybody else," Dr. Bulik said. "When most of us get hungry, or starved, we get more anxious. But these people's bodies respond differently. They say that food deprivation makes them feel more calm and more in control, which is one reason they keep doing it."

Dr. Bulik's UNC co-authors were Drs. Patrick F. Sullivan, a professor in the Department of Genetics; Federica Tozzi, who was a postdoctoral fellow in the Department of Psychiatry; and Helena Furberg, a postdoctoral fellow in the Department of Genetics. Co-authors from the Karolinska Institute were Drs. Paul Lichtenstein, associate professor; and Nancy L. Pedersen, professor and department head, both in the Department of Medical Epidemiology and Biostatistics.

Aspirin cost-effective at preventing heart disease

Taking aspirin to prevent coronary heart disease is beneficial and cost-effective for a wider range of men than is often recognized, a UNC study has found.

PIGNONE

Compared to no treatment, taking aspirin was less costly and more effective for preventing heart attacks and other events in men whose 10-year risk for coronary heart disease was 7.5 percent or greater. At that risk level, 7.5 out of 100 people can expect to have a heart attack or develop angina in the next 10 years.

"Before this analysis, most experts felt aspirin was beneficial in men with a 10-year risk of heart disease of 10 percent or greater. Our analysis suggests that it is also beneficial for men between 5 percent and 10 percent risk," said Michael Pignone, MD, associate professor of medicine in the UNC School of Medicine's Division of General Internal Medicine and a member of the UNC Lineberger Comprehensive Cancer Center.

The study also showed that aspirin was not effective for men whose 10-year risk was below 5 percent, because the chance of adverse effects from bleeding cancelled out the benefit from prevention of coronary heart disease events.

"There are patients at higher risk for coronary heart disease who aren't getting aspirin therapy who could benefit, and there are also those at lower risk who are taking aspirin but shouldn't be," Dr. Pignone said.

The study also found that adding a statin, or cholesterol-lowering, drug to aspirin therapy became cost-effective only when the patient's 10-year risk for coronary heart disease was higher than 10 percent.

"People should find out their cardiovascular risk and make decisions about preventive treatment based on that risk," Dr. Pignone said.

The study, of which Pignone is the lead author, was published in the March 7 issue of *Annals of Internal Medicine.*

Tools are available that patients or physicians can use to determine an individual's risk for coronary heart disease, including "Heart to Heart," found at www.med-decisions.com, the authors said.

The study used published data from trials of aspirin and statin therapy to model the cost-effectiveness of the therapies in middle-aged men who are at varying levels of risk for heart disease.

"Many trials have shown efficacy of aspirin or statins, but we wanted to analyze the efficacy along with the harms, the costs and effect on quality of life and see how good of a deal these treatments are," Dr. Pignone said.

The analysis factored in the risk of side effects such as gastrointestinal bleeding, as well as the reduction in quality of life that occurs when a patient finds it onerous to take a pill every day. The study was limited somewhat by the amount and quality of data available, including limited data on adverse effects, Dr. Pignone said.

"We still need more research on some of these issues in order to better guide prevention decisions."

Other authors of the study are Dr. Stephanie Earnshaw of RTI Health Solutions in Research Triangle Park; and Dr. Jeffrey A. Tice and Dr. Mark J. Pletcher, both of the University of California at San Francisco.

Dr. Pignone and colleagues plan a future analysis of similar data that applies to women.

The study was supported by Bayer HealthCare, LLC. Bayer had no role in collection, interpretation or analysis of the data, the authors said. Pignone also received support from a grant from the U.S. Centers for Disease Control and Prevention to the RTI-UNC Center of Excellence in Health Promotion Economics.

Cancer support cells may evolve, fuel tumor growth, study shows

UNC scientists have demonstrated in a living organism that cancers may cause surrounding supportive cells to evolve and ultimately promote cancer growth.

The new research offers what is believed to be the first evidence that mutations within cancer cells can signal surrounding tissue cells to alter their molecular composition in ways that promote tumor growth and proliferation.

Moreover, the findings also suggest that cell mutations that promote cancer progression may arise in cells other than the predominant cancer cell.

The new findings are published as the cover story in the Dec. 16 issue of the journal *Cell.*

While not offering immediate application to the treatment of human cancers, the research indicates that new anti-tumor therapies may be more effective if their targets are broadened to include molecules within supporting cells of the cancer.

These additional target cells are in the tumor's surrounding "microenvironment," or stroma, including the supporting connective tissue that forms the framework of organs such as the breast, colon and prostate. They also are found in the tumor's blood vessels, or its vasculature.

"Basically, virtually all the studies on genetic changes or changes in gene expression have focused on the cancer cell, on events within the cancer cell itself," said Terry Van Dyke, PhD, professor of genetics and biochemistry and biophysics in the School of Medicine, member of the UNC Lineberger Comprehensive Cancer Center and the study's senior author.

Thus, research focused solely on the predominant cancer cell, such as epithelial cells that form the bulk of many tumors including breast cancer, would be on the accumulated mutations that have allowed the cell to survive and grow unchecked.

VAN DYKE

"But over the last several years, it has become increasingly clear that cancer involves complex interactions among different types of cell compartments, and, as in any organ, these compartments comprise blood vessels, supporting tissue and immune cells," said Dr. Van Dyke.

"The interaction between the predominant cancer cell type and other types of surrounding cells is important in

the development of disease."

The signals that go back and forth between cells contain selective pressures, not only on the cancer cell itself but also on the surrounding cell, she said.

"Think of it as a microcosm of evolution, such that every change that goes on in the cancer cell can impact cells around it. It's a back-and-forth cross-talk via which the whole entity evolves, not just a subset of cells within the cancer. It's an environment where changes in the surrounding cells are selected that will help tumor growth."

Dr. Van Dyke's UNC collaborators in the new research were graduate student Reginald Hill and postdoctoral researcher Dr. Yurong Song. Dr. Robert D. Cardiff, professor of pathology at the University of California at Davis, also collaborated in the study.

Their series of experiments involved a genetically engineered mouse model of prostate cancer developed in Dr. Van Dyke's UNC laboratory. The researchers manipulated epithelial cells – the target cell type for prostate cancer – causing them to divide at an accelerated rate.

First, they found that this accelerated division triggered a signal to fibroblasts, connective cells in the surrounding supporting tissue, to grow and proliferate. The signal then induced a tumor suppressor, p53, within the fibroblasts, which stopped this action.

Thus, a change made only in epithelial cells had an impact on surrounding tissue cells.

Next, the researchers showed that fibroblasts eventually lost p53 function. This resulted in cells continuing to divide and proliferate, thereby fueling the cancer's growth. "This occurred in 100 percent of the animals studied. It's a strong selective pressure," Dr. Van Dyke said. "Now the whole organ is evolving as a cancer, not just a single population of cells."

If the research suggests a need to look at cancer development as a more dynamic process, it also indicates a need for expanding the approach to treatment, said Dr. Van Dyke.

"If the changes you're targeting in the predominant cancer cell are going to affect, say, the supportive tissue, it may be best to develop therapies that hit both types of cell."

In their report, the study authors said further work aimed at more fully understanding the signals, their pathways and the cells' responses was needed.

They said their findings underscore the dynamic complexity of cell-to-cell interactions and the changing selective microenvironment that drives cancer development.

Support for the research came from the National Cancer Institute.

Researchers find effective, cheap treatment for CF lung disease

Working half a world away from each other, two teams of medical scientists have identified what they believe is a simple, effective and inexpensive treatment to reduce lung problems associated with cystic fibrosis, the leading fatal genetic illness among whites.

The new therapy, identified through studies supported chiefly by the Cystic Fibrosis Foundation and the National Heart, Lung and Blood Institute, also appears to be safe and easy to take.

By inhaling a saltwater aerosol solution almost twice as salty as the Atlantic Ocean for between 10 and 15 minutes at least twice a day, young patients should be able to avoid a significant part of the damage the disease causes to their lungs, the researchers said. That's because the aerosolized saltwater restores the thin lubricant layer of water that normally coats airway surfaces. This water layer promotes the clearance of the naturally occurring mucus the body uses to trap harmful bacteria, viruses and other foreign particles.

DONALDSON

One scientific team consists of faculty members at the UNC School of Medicine and UNC Hospitals. The other, also supported in part by the U.S. and Australian CF foundations, includes faculty and staff at the Royal Prince Alfred Hospital, the University of Sydney and the Woolcock Institute of Medical Research, all in Sydney.

Reports on both studies, which were collaborative and complementary, appeared in the Jan. 19 issue of the *New England Journal of Medicine*.

Authors of the first report, all at UNC, are Drs. Scott H. Donaldson, assistant professor of medicine; William D. Bennett, research associate professor of medicine; Kirby L. Zeman, research associate at the Center for Environmental Medicine, Asthma and Lung Biology; Michael R. Knowles, professor of medicine; Robert Tarran, assistant professor of medicine; and Richard C. Boucher, professor and director of the Cystic Fibrosis Research and Treatment Center.

"We are very excited that this simple and inexpensive therapy turned out to be so effective and well-tolerated in patients with CF," said Dr. Donaldson, who, along with Dr. Bennett, was the paper's first author. "It is especially gratifying to see patients in our own clinical practice embrace and benefit from it.

"These results could change how physicians elsewhere care for patients with CF," he said. "As we look at the combined results of our study and those of our Australian colleagues, it gives us great hope that use of this therapy will reduce how often patients feel ill, will slow the decline of lung function over time and will help these people live longer."

Dr. James Kiley, director of the National Heart, Lung and Blood Institute's Division of Lung Diseases, said the treatment "sets the stage for the development of additional therapies in CF patients."

Cystic fibrosis appears on average in one of four children of parents who both carry a defective copy of a gene known as CFTR, Dr. Donaldson said. Children born with the disease soon develop chronic lung damage, since their lungs cannot clear excessively sticky

mucus by sweeping it to the mouth, where it is swallowed and eliminated. Respiratory failure is the leading cause of death in CF patients.

BOUCHER

This research is important both for its immediate application and because it provides the roadmap for development of future effective therapies for CF, Dr. Boucher said. This study appears to establish the concept that the surfaces of the lungs of CF patients are dehydrated, and restoring hydration with hypertonic saline treats the basic cause of this disease.

In healthy people, a thin film of water only five-to-10 microns thick coats and lubricates the open areas of the lungs, Dr. Boucher said. "Our studies demonstrate that CF lungs are missing this watery layer, and, hence, to treat the disease effectively, you have to re-hydrate CF airway surfaces. This can be done with inhaled water solutions that are seven or eight times more salty than blood or about three-quarters as salty as the Dead Sea.

"Salt essentially sucks water from the lung tissues out onto the airways. The irony is that the therapy works better in CF subjects than non-CF subjects," Dr. Boucher added.

The UNC study involved 24 CF patients who each inhaled the salt solution with or without pretreatment with a compound known as amiloride over two-week periods. Analysis of mucus clearance and lung function showed that the high-salt aerosol alone worked best, which somewhat surprised the medical scientists. Laboratory studies established that the failure of amiloride to promote the effect of hypertonic saline reflected a novel action of the drug – i.e., to block water transport. This novel observation in part established hydration of airway surfaces as the mechanism of action for hypertonic saline.

Following communication with the UNC group, the Australian researchers used a comparable protocol to study another 164 patients for a longer period, almost a year. During the longer span, the Sydney researchers also found fewer lung problems with the concentrated saline than with normal saline, less need for antibiotics to treat lung infections over time, and improved attendance by patients at school, work and other activities during the 48 weeks.

Because salt solutions are so cheap to make, another attractive aspect of this new therapy is that its clinical benefits will come at a minimal treatment expense, in contrast to many other available therapies, Dr. Donaldson said.

Health seriously declines, disparities increase as youths become adults

Can becoming an adult be hazardous to your health? A new study from UNC's Carolina Population Center indicates that may be the case, with leading health indicators showing serious declines as adolescents become adults.

A survey involving an ethnically diverse and nationally representative sample of 14,000 young people found diet, inactivity, obesity, health-care access, substance use and reproductive health to worsen with age. Only self-perceptions of personal health, including mental health, and exposure to violence improved with age.

The study, funded by the National Institute of Child Health and Human Development, appeared in the January issue of the *Archives of Pediatrics and Adolescent Medicine*.

The declines in health indicators spanned both sexes and all racial and ethnic groups. The study compared the health of whites, blacks, Asians, Hispanics and American Indians. All groups showed significant declines in health from adolescence into young adulthood.

The report used a unique source of data, the National Longitudinal Study of Adolescent Health (Add Health), which follows a national sample of more than 14,000 adolescents through their transition into young adulthood. Most previous studies of health disparities have used data collected at a single time point.

"This is the first longitudinal study to track the developmental trends in health disparities among a national cohort of young people with new findings showing a general decline in health during the transition to adulthood," said the lead author Dr. Kathleen Mullan Harris, Gillian T. Cell distinguished professor of sociology at UNC, a fellow at the Carolina Population Center and director of the Add Health study.

UNC has been the home base for Add Health since its initiation in 1994 with federal funding.

Add Health survey participants were recruited from high schools and middle schools nationwide. They were first interviewed from 1994 to 1995, when they ranged in age from 12 to 19 years, and again, in 2001 and 2002, when they were between 19 and 26 years old.

They responded to questions on diet, inactivity, obesity, tobacco use, substance use, binge drinking, violence, reproductive health, mental health and access to health care.

According to the report, as adolescents become young adults, an increasing proportion have no current health insurance, do not receive health care when they need it and do not receive regular dental or physical examinations.

"The transition to adulthood is a time when people begin to solidify their health practices and, therefore, an important time for health improvement efforts," said study co-author Dr. Penny Gordon-Larsen, assistant professor of nutrition (a department housed jointly in UNC's Schools of Public Health and Medicine) and a fellow at the Carolina Population Center.

"We need a major investment in preventive health efforts for this age group, especially in those areas that our study found were important, such as greater access to health insurance, healthy food options, exercise facilities and reduced exposure to substances of abuse."

For most of the health indicators that worsened over time, racial and ethnic disparities also increased, although no one single ethnic group stood out as consistently disadvantaged. For example, smoking and binge drinking increased significantly for all groups, with increasing disparity between racial groups over time, with the greatest disadvantage found among whites. Diagnosis of sexually transmitted infections (STIs) increased significantly for all groups, with increasing racial and ethnic disparity over time and the greatest disadvantage among blacks.

In general, the study showed great variability in the levels and trends of racial and ethnic disparity across a large array of health indicators. "That means that there are no simple, across-the-board solutions for addressing health disparities," Dr. Harris said. "Instead, solutions must be sensitive to the different patterns of health risk that emerge across population groups as adolescents enter young adulthood."

In addition to Drs. Harris and Gordon-Larsen, other

authors are Kim Chantala, research associate at the Carolina Population Center; and Dr. J. Richard Udry, Kenan professor in the College of Arts and Sciences' department of sociology and in the School of Public Health's department of maternal and child health and a fellow within the Carolina Population Center.

Study finds genes that control muscle development

UNC scientists have found two genes that are essential for the proper development of muscle.

Their findings were published Dec. 25 in the on-line edition of the journal *Nature Genetics*.

The genes are among a recently discovered group of genes known as microRNAs (miRNAs), which were first discovered in worms twelve years ago. Only in the past few years have they become recognized as essential gene regulators in many multicellular organisms, including humans.

"Our interest is in understanding, at the level of gene expression, how muscle cells develop," said Dr. Da-Zhi Wang, the senior and corresponding author of the study. Dr. Wang is an assistant professor of cell and developmental biology and a member of both the Carolina Cardiovascular Biology Center and the UNC Lineberger Comprehensive Cancer Center.

"As microRNAs are gaining acceptance as global regulators of gene expression, we questioned whether they could be involved in the development of muscle," he continued.

WANG

Muscle tissue is generated when myoblasts, or pre-muscle cells, stop growing (proliferation) and instead undergo irreversible changes (differentiation) that cause them to become myotubes, or mature muscle cells.

Dr. Wang's group studied two miRNAs — miR-1 and miR-133 — found exclusively in muscle cells. Because their genes are located so close to one another, miR-1 and miR-133 are always expressed together, yet carry out opposing tasks.

"This is the first case that two miRNAs are co-expressed together but perform different functions," said Dr. Wang.

The two miRNAs described in the UNC study are instrumental in determining whether myoblasts proliferate or differentiate. The research showed that increasing the amount of miR-1 caused myoblasts to differentiate into mature muscle cells, but prevented their proliferation. To the contrary, increasing the amount of miR-133 caused the myoblasts to proliferate even more, but prevented them from undergoing differentiation.

Similar experiments carried out in developing frog embryos confirmed their finding. Increasing miR-1 caused more muscle tissue overall and fewer myoblasts, while increasing miR-133 led to more myoblasts but less muscle overall in the frog embryo.

"That was quite a surprise to many people because those two miRNAs are both equally expressed when muscles are differentiating, so we assumed that they are probably pushing muscle cells in the same direction. But after analyzing them we found they have contradictory roles," Dr. Wang added.

Exactly how far reaching their effect is on diverse biological processes remains unclear.

As with all RNA molecules, miRNAs are copied from genes contained in the DNA of a cell. Whereas typical RNA molecules contain thousands of ribonucleotide bases, abbreviated "A's," "U's," "G's," and "C's," miRNAs are only 22 bases in length.

Unlike the main class of RNA molecule called messenger RNAs (mRNAs), miRNAs are not a blueprint for making protein. Rather, miRNAs bind to and actually prevent specific mRNA molecules from making their protein. In this way, miRNAs inhibit gene expression.

In the miRNA field there are two types of thinking, Dr. Wang explained. One is that miRNAs are master regulators of a variety of biological processes, and the second is that miRNAs provide a way to fine tune the master regulators.

"Because these two miRNAs are expressed together, but act oppositely in muscle cells, our data suggest that miR-1 and miR-133 act as fine tuners of the muscle development process," Dr. Wang said.

Indeed, the researchers found that miR-1 and miR-133 lower the amounts of two proteins, HDAC4 and SRF, respectively, which play important roles in muscle proliferation and differentiation.

Ongoing animal studies by the authors are exploring the possible roles that these two miRNAs may play in muscle pathology, such as skeletal muscle damage or cardiac hypertrophy.

Dr. Wang's collaborators at UNC were Dr. Scott M. Hammond, assistant professor of cell and developmental biology and Dr. Frank L. Conlon, assistant professor of biology and genetics.

"Three junior faculty members put their strengths together in this research. It reflects the cooperation in the scientific community here at UNC," Dr. Wang said.

Contributing authors also include graduate students Jian-Fu Chen, the lead author, and Thomas E. Callis, as well as technician Qiulian Wu, from Wang's lab. Other collaborators were graduate student Elizabeth M. Mandel of Conlon's lab, and postdoctoral scientist Dr. J. Michael Thompson of Hammond's lab.

The research was supported by grants from the National Institutes of Health, the American Heart Association, the March of Dimes Birth Defect Foundation, and the Muscular Dystrophy Association.

Cirrhosis patients with liver nodules at increased risk of cancer

Cirrhosis patients with small "nodules" in their livers are 25 times more likely to develop cancer than those without nodules, a study conducted at UNC Hopsitals has concluded.

These findings have great implications for the treatment of patients with cirrhosis who are candidates for liver transplantation, said Dr. Mark W. Russo, corresponding author of the study, which was published in the March issue of the *American Journal of Gastroenterology*.

RUSSO

People with cirrhosis who are liver transplant candidates move up on the transplant priority list if they meet certain criteria for hepatocellular carcinomas, or cancerous liver tumors, said Dr. Russo, an assistant professor in UNC's Division of Gastroenterology and Hepatology. Essentially, if their nodules – small growths of tissue that may or may not develop into tumors – aren't too big and there aren't too many of them, they meet the criteria.

"If the patients satisfy these criteria, they can perhaps be transplanted sooner than someone without a liver cancer," he said.

In addition, the study shows that cirrhosis patients with nodules of less than half an inch in diameter should be followed with imaging studies such as magnetic resonance imaging (MRI) more frequently than patients without nodules, Dr. Russo said.

"The critical thing with hepatocellular carcinomas is to find them when they're small and, therefore, treatable," added co-author Dr. Richard C. Semelka, professor and vice chairman for clinical research in the department of radiology.

Hepatocellular carcinomas, or HCC, are cancerous tumors on the liver. They account for 80 percent to 90 percent of liver cancers. The occurrence of HCC nationwide has doubled during the last 20 years, and the long-term survival of patients with HCC remains poor. The major risk factor for HCC is cirrhosis, a chronic liver disease that causes damage to liver tissue. In the United States, cirrhosis is caused most often by hepatitis C infection or alcohol abuse.

Since no prior studies directly compared the risk of developing hepatocellular carcinoma in patients with liver nodules to those without, Dr. Russo and several UNC colleagues set out to do precisely that. They included in their study 310 patients who were liver transplant candidates at UNC Hospitals between 2001 and 2004. Of these, 133 received liver transplants while the study was under way. At the start of the study, none of these patients had been diagnosed with HCC.

The researchers reviewed the abdominal MRI, clinical and laboratory records of these patients. Patients without liver nodules had an abdominal MRI once a year, while those with liver nodules had an abdominal MRI every three to six months. In addition, pathologists examined livers removed from the patients who underwent liver transplant for evidence of nodules and hepatocellular carcinoma.

They found that the one-year incidence of HCC in the patients with liver nodules was 11 percent, while the rate was 0.5 percent in the patients without nodules. The adjusted risk for HCC in the group with nodules was 25 times higher than in the group without nodules. Among the patients who received liver transplants, 50 percent of those with liver nodules were found to have HCC, while only 3.6 percent of those without nodules met that diagnosis.

The study identifies a subgroup of patients with cirrhosis at a very high risk for developing HCC, the authors wrote in their conclusion. "Based on these findings, follow-up MR imaging for cirrhotic patients with liver nodules is warranted."

In addition to Drs. Russo and Semelka, the UNC co-authors were Dr. Ertan Pamuklar and radiology technician Zeynap Firat, both from the department of radiology; Dr. Richard David Gerber from the department of surgery; Tilak U. Shah, a fourth-year medical student at UNC; and Dr. Roshan Shrestha, a former professor in the Division of Gastroenterology and Hepatology (no longer at UNC).

Funding was provided by the National Institute of Diabetes and Digestive and Kidney Diseases and UNC's Center for Gastrointestinal Biology and Diseases.

UNC scientists discover 'gatekeeper' protein in blood clotting

New research from the UNC School of Medicine has identified a protein that may control blood clotting by keeping blood platelets from sticking together.

Uncontrolled interactions between blood platelets such as those that occur during heart attacks and strokes contribute to these leading causes of death nationwide.

PARISE

The study, which appeared in the Jan. 17 edition of the *Journal of Cell Biology*, indicates that CIB1 binds to and keeps the platelet adhesion receptor GPIIb/IIIa in an inactive state, thus blocking platelet-to-platelet interactions in the blood.

Dr. Weiping Yuan, an assistant professor in UNC's Department of Pharmacology and the study's lead author, said CIB1's role was as a "gatekeeper" of GPIIb/IIIa activation. "Originally, I was a little surprised. We expected CIB1 itself to activate GPIIb/IIIa, but that is clearly not the case. CIB1 keeps GPIIb/IIIa turned off until it should be activated."

The UNC laboratory of Dr. Leslie V. Parise, professor of pharmacology and the new study's senior author, discovered the protein CIB1 in 1997. It was found inside platelets as a protein that binds to GPIIb/IIIa.

Under normal conditions, GPIIb/IIIa, found on the surface of platelets, remains in a resting, inactive state that allows normal blood flow. However, during clotting, GPIIb/IIIa becomes active, binds platelets to one another and attaches them to the blood vessel wall, thus forming a clot.

GPIIb/IIIa also is the target of several anti-coagulation drug therapies used in the clinic today, but the study suggests that knowledge of how CIB1 functions may lead to new therapeutic approaches.

The report, which used platelet precursor cells, demonstrated that decreasing the amount of CIB1 in these cells makes GPIIb/IIIa more responsive, thus more likely to mediate blood clotting. Increasing the amount of CIB1 prevented GPIIb/IIIa activation.

"Our data suggest that CIB1 may be one of the body's own natural anti-coagulants – as long as CIB1 is bound to GPIIb/IIIa, the platelet stays quiet. However, if a person doesn't have enough CIB1 or their CIB1 isn't functional, then their platelets may have the potential to be hyper-

Continued on page 19

From left, Chief Judge Robert M. Bell of the Court of Appeals of Maryland and ASTAR chairman; Dr. James P. Evans, professor of genetics and medicine at UNC's School of Medicine, director of clinical cancer genetics at the UNC Lineberger Comprehensive Cancer Center and director of the Bryson Program in Human Genetics in the School of Medicine; Dr. Franklin M. Zweig, ASTAR president and Judges' Medical School director; and Chief Justice Thomas J. Moyer of the Supreme Court of Ohio and ASTAR vice chairman.

First national medical school for court judges convenes at UNC

Roughly 70 judges from more than 10 states participated in the first National Judges' Medical School March 8-11, sponsored by the School of Medicine and the Advanced Science and Technology Adjudication Resource (ASTAR) Center in Washington, D.C.

Co-sponsorship and major funding for the program came from the Carolina Center for Genome Sciences.

The program topic, "Biogenetic and Environmental Triggers and Treatment of Cancer," was aimed at helping participants become better judicial gatekeepers and adjudicators in cancer-related civil and criminal cases brought before the courts. The program helped educate a group of ASTAR "resource judges" from Maryland and Ohio to serve as judicial resources for judges in their respective jurisdictions.

Through case presentations, lectures, discussions, demonstrations and small group "adjudication clinics," more than 20 faculty helped judges explore the detection, diagnosis, treatment, evaluation and cancer-related evidence introduced in incidental civil and criminal actions. The program's science curriculum featured the topic's interacting biological and clinical dimensions.

Department of Dermatology expands services, adds faculty

The dichotomy between what people actually do and what they know they should do is no surprise to practicing clinicians. This is true in dermatology as well as other medical disciplines. For example, there is a well-documented association between sun exposure and skin cancer and photo-aging. Yet, despite all the public awareness campaigns, one only needs to note the number of tanning salons and people sunbathing to realize that this data goes ignored.

"Changes in societal norms and advances in medicine have always affected the way we as dermatologists have cared for our patients," said Luis A. Diaz,

MD, Department of Dermatology chair and C.E. Wheeler Jr. Distinguished Professor. "People have a strong interest in the condition of their skin. We have done our best to respond to this demand with the expansion of our services and in the number of our clinical faculty."

The new UNC Dermatology Center opened in February in the Southern Village neighborhood of Chapel Hill. Treatments offered at the new 4,800-square-foot clinic will include the department's long-established clinical services in addition to a new line of aesthetic services to which patients may self refer. These include the treatment of facial and leg veins with lasers and sclerotherapy, applications of BOTOX®, injectable fillers, and chemical peels for wrinkles and pigmentary changes that come with aging and chronic sun exposure.

"We offer cutaneous surgery to treat skin cancer and to remove non-malignant skin lesions," said Dan Parsons, MD, who is leading the department's cosmetic service initiative. "We plan to provide laser hair and tattoo removal if patients are interested." The Cosmetic Dermatology service is committed to providing safe, state-of-the-art services that will help patients to look as good as they feel.

Dr. Parsons is one of six new staff members who have joined the department in recent months. These new members of the faculty allow the department to maintain its tradition of offering quick access to treatment for patients as well as broaden its clinical reach. In March the department saw the creation of a Genodermatosis/Genetic Skin Diseases clinic and the expansion of the melanoma clinic to encompass cutaneous oncology.

The department is also providing clinical services at UNC Dermatology at Burlington for patients in that geographic area.

Otolaryngology residents participate in advocacy conference

Nine residents in the Department of Otolaryngology/Head and Neck Surgery received travel grants from the American Academy of Otolaryngology-Head and Neck Surgery to participate in the Washington Advocacy Conference. This annual event was held March 4-7 in Washington, D.C.

The Washington Advocacy Conference provides members with a unique opportunity to meet with federal legislators and educate them on the issues that affect patients and the specialty. Last year, more than 200 otolaryngologists descended on Capitol Hill to make their voices heard. These advocates attended more than 500 meetings with members of Congress and their staffs. The meetings focused on the Academy's four top legislative issues:

- Stopping Medicare cuts and fixing the flawed SGR payment formula
- Passing Medical Liability Reform in both the House and the Senate
- Securing appropriations for the National Institutes of Health to initiate and expand clinical research
- Protecting patient safety by opposing the inappropriate expansion of scope of practice

The OHNS residents attending this year are: Marc K. Bassim, MD, Trinitia Y. Cannon, MD, Karen A. Kölln, MD, Deidra A. Blanks, MD, Paul C. Bryson, MD, W. Derek Leight, MD, Allen F. Marshall, MD, Jeffrey LaCour, MD, and John Alldredge, MD.

Research *Continued from page 17*

responsive and pathologically predisposed to clotting," Dr. Parise said.

Additionally, the authors propose that CIB1 maintains the adhesion receptor in its inactive state by preventing the binding of another protein called talin to GPIIb/IIIa, which has been shown in other studies to be an adhesion receptor activator.

"CIB1 and talin compete for binding to the adhesion receptor; therefore, we think that as long as CIB1 is bound to the adhesion receptor, this prevents talin from binding and activating the receptor," said Dr. Tina Leisner, assistant professor of pharmacology and one of the study's primary authors.

The group now plans further study of the molecular mechanisms of the CIB1/GPIIb/IIIa interaction, which could lead to the development of new therapies in the prevention of platelet activation.

Along with Drs. Parise, Yuan and Leisner, co-authors on the study include Parise lab members Andrew W. McFadden, Dr. Zhengyan Wang, Shantres Clark, Dr. Christel Boudignon-Proudhon and Dr. Mark K. Larson. Stephen C.-T. Lam of the University of Illinois at Chicago's department of pharmacology also co-authored the study.

This work was supported by grants from the National Institutes of Health.

40s

George B. Patrick Jr., CMED '40, lives in Silver Spring, Md., where he works in the practice of his son, George B. Patrick III, MD.

50s

Robert S. Cline, MD '57, received the E. Harvey Estes Community Service Award from the North Carolina Medical Society in October 2005 for his work with the Lee County Enrichment Center, which serves Lee County's older adults. Dr. Cline lives in Sanford, N.C., where he co-founded the Sanford Medical Group in 1965. He retired from active practice in 1997.

60s

Jeff D. Bulla, MD '60, retired in January 2005 from his family practice at the Kernodle Clinic in Burlington, N.C. Dr. Bulla lives in Leasburg, N.C.

80s

Steven Baumrucker, MD '86, is the co-editor in chief of *The American Journal of Hospice* and Palliative Medicine. Dr. Baumrucker is beginning a new position this year in full-time palliative medicine in Kingsport, Tenn., and is still teaching at Quillen College of Medicine at East Tennessee State University. He has two children, Beck, 1, and Liam, 2, and lives with his wife, Tacie, in Kingsport.

Alan R. Saltiel, PhD '80, has been elected to The Institute of Medicine of the National Academy of Sciences. Dr. Saltiel is director of the Life Sciences Institute at the University of Michigan, where he is also the John Jacob Abel Collegiate Professor in Life Sciences and professor of internal medicine and physiology.

90s

Dr. Gilbert Upchurch Jr., MD '91, is now Leland Ira Doan Research Professor of Vascular Surgery in the University of Michigan Medical School.

Geoffrey Allen, MD '93, was married in September 2005 to Michelle Forcier, MD. He since has left UNC to take positions as director of the Hemophilia Program at Children's Memorial Hospital in Chicago and associate professor of pediatrics at Northwestern University's Feinberg School of Medicine.

Brent Ridge, MD '95, is director of clinical strategies and an assistant professor in the Department of Geriatrics and Adult Development at the Mount Sinai School of Medicine in New York. Dr. Ridge will head the new Martha Stewart Center for Living at Mount Sinai Hospital, which was funded by a $5 million gift from Ms. Stewart.

00s

David Fitzgerald, MD '00, and **Elizabeth C. (Leonard) Fitzgerald, MD '00**, are currently volunteering in southern Belize as co-medical directors of a free clinic serving a large impoverished population. David finished his residency at the University of Pennsylvania in 2004 and worked for a year doing housecalls for homebound geriatric patients in inner-city Philadelphia while Elizabeth finished her pediatric residency at Children's Hospital of Philadelphia. David and Elizabeth have two children; Eamonn, 4, and Aine, 1.

Maggie Day Bell, MD '04, is an anesthesia resident at the University of Alabama at Birmingham. She and her husband, Ted, welcomed their first baby, Ava Victoria, on June 10, 2005. Ava weighed six pounds, six ounces and was 20 inches long.

Deaths

CORRECTION: The Winter 2006 issue of the *UNC Medical Bulletin* reported, incorrectly, that Lawrence H. Hooper Jr., MD '79. had died. Dr. Hooper is still alive. His father, Lawrence H. Hooper Sr., died on Feb. 18, 2005. *The Bulletin* apologizes for the error.

Robert Shelton Beam, CMED '40, died Feb. 20, 2006. After leaving UNC, he earned a dental degree at the University of Tennessee and then practiced dentistry, first in Sanford, N.C., and then in Raleigh, where he lived for the rest of his life.

Abraham Benjamin Conger, CMED '40, died Oct. 1, 2005. His last residence was in Columbus, Ga. He finished his medical degree at Harvard Medical School and his specialty was general surgery.

Robert Vance Dutton, CMED '46, died Nov. 8, 2005. His last residence was in Houston, Texas. He finished his medical degree at the University of Virginia School of Medicine and his specialty was radiology.

Paul B. Duvall, MD '80, died Jan. 4, 2006. His last residence was in Brevard, N.C., and his specialty was family practice.

Herman Franklin Easom, CMED '25, died Dec. 16, 2005, at the age of 103. He finished his medical degree at Washington University School of Medicine in St Louis. His last residence was in Wilson, N.C., and his specialties were pulmonary diseases and internal medicine.

William Cromartie Elliott, MD '58, died Dec. 4, 2005. Dr. Elliott's last residence was in Indianapolis, Ind., and his specialty was cardiology. He was an assistant professor at Indiana University and was known for founding what is believed to be the first hospital-based hospice in the United States, at Methodist Hospital in Indianapolis.

William B. Horn, MD '72, died Dec. 3, 2005. He was a practicing pediatrician in Boone, N.C. for 30 years, at Northwest Children and Adolescents Clinic and Watauga Medical Center.

William Albert Kirksey, Jr, CMED 3-'43 (one of the special World War II classes), died Jan. 11, 2006. His last residence was in Morganton, N.C. He finished his medical degree at Washington University School of Medicine in St. Louis and his specialty was family practice.

Hugh Howard McFadyen, CMED '40, died Oct. 4, 2005. His last residence was in Tucson, Ariz. He finished his medical degree at Johns Hopkins Medical School and his specialty was internal medicine.

Jennepher Hart Micalizzi, MD '93, (known before her marriage in 2003 as Jennepher Nancy Hart) died Jan. 8, 2006. Dr. Micalizzi lived and practiced in Charlotte, N.C., after completing her residency in internal medicine at the Stanford University Medical Center in Palo Alto, Calif.

Liphus Oscar Murphy, Jr., CMED '46, died July 22, 2005. Dr. Murphy's last residence was in Waynesboro, Miss., and his specialty was general practice.

G. Frank Owen, Jr, CMED 3-'43, one of special WWII classes, died Dec. 14, 2005. His last residence was in Green Cove Springs, Fla. He finished his medical degree at Jefferson Medical College in Philadelphia and his specialty was general medicine.

Arthur I Sims, CMED '37, died Jan. 12, 2006. His last residence was in Naples, Fla. He finished his medical degree at Jefferson Medical College in Philadelphia and his specialty was pediatric cardiology.

William Robert Story, MD '58, died Thursday, Jan. 12, 2006. While in medical school, he was president of the Whitehead Society. He interned at Walter Reed Army Hospital in Washington, D.C., and spent the next six years as a doctor in the U.S. Air Force as a major. His residency in urological surgery was completed at Charlotte Memorial Hospital (now Carolinas Medical Center), and he entered private practice with the McKay Medical Group, Dr. Haynes Baird and Dr. Homer Justis, later known as Charlotte Urology, where he was in practice for 30 years.

Oliver Wayne Williamson, CMED '46, died May 12, 2005. His last residence was in Wagener, S.C. He finished his medical degree at the University of Maryland School of Medicine and his specialty was psychiatry.

Sandler elected VP of gastroenterological association

SANDLER

Robert S. Sandler, MD, MPH, chief of the Division of Gastroenterology and Hepatology in UNC's School of Medicine, has been elected vice president of the American Gastroenterological Association.

In addition, Dr. Sandler has been awarded the 2006 Masters Award for Sustained Achievement in Digestive Disease. The award recognizes scientists and physicians who have made significant and sustained contributions to gastrointestinal disease research and who have been academic leaders as well. The award is given by the Masters Awards Advisory Board, which consists of nine senior scientists and physicians, in cooperation with the American Gastroenterological Association.

Dr. Sandler will officially assume the role of vice president during the association's annual Digestive Disease Week conference, which takes place in May in Los Angeles. He will also receive his Masters Award at the conference on May 22.

Dr. Sandler will be vice president for one year and then president-elect for a year, before becoming president of the association for a one-year term in 2008.

Dr. Sandler is Nina C. and John T. Sessions distinguished professor in UNC's School of Medicine and professor of epidemiology in the School of Public Health. He joined the UNC faculty in 1981 and has been the division chief since 2003. Dr. Sandler is associate editor of Gastroenterology, the leading peer-reviewed journal in the field.

As a researcher, Dr. Sandler is nationally recognized in the field of cancer epidemiology and outcomes research. He was the principal investigator in a widely cited study published in The New England Journal of Medicine that found patients who had colorectal cancer might reduce their risk of developing future colorectal adenomas (colorectal cancer precursors) by taking an aspirin daily.

The American Gastroenterological Association is the largest and most prestigious professional organization in gastroenterology. Founded in 1897, the association is the oldest medical-specialty society nationwide, and its more than 14,500 members include physicians and scientists who research, diagnose and treat disorders of the gastrointestinal tract and liver.

Dr. Dirschl is program chair of annual orthopaedic meeting

DIRSCHL

Douglas R. Dirschl, MD, chair of the Department of Orthopaedics, is Program Chairman for the Annual Meeting of the American Orthopaedic Association, which takes place June 21-24, 2006, in San Antonio.

Dr. Dirschl organized each of the eight symposia that will be presented and will serve as moderator for one of them. Each symposium is focused on a current critical issue in orthopaedic practice today.

The symposium Dr. Dirschl will moderate, "Gainsharing in Orthopaedics: Wave of the Future or Passing Fancy," will bring together some of the nation's leading experts in gainsharing agreements between physicians and hospitals to lead a discussion of the importance of these agreements to orthopaedic practice and to speculate on the future of these agreements.

At the meeting, Dr. Dirschl will formally assume chairmanship of the AOA Criticial Issues Committee. This group of the AOA is charged with choosing program chairman for annual meetings, identifying critical issues in orthopaedics, and in generating mechanisms by which the AOA can take a leadership role in addressing these critical issues.

Dr. Benjamin is named first Denny Distinguished Professor

John T. Benjamin, MD, has been selected as the first Floyd W. Denny Jr. M.D. Distinguished Professor in the University of North Carolina at Chapel Hill School of Medicine.

Dr. Benjamin is a professor in the department of pediatrics and chief of the Division of General Pediatrics and Adolescent Medicine. The new distinguished professorship honors the career, ideals and memory of the late Dr. Floyd W. Denny Jr., who was chairman of UNC's Department of Pediatrics for 21 years and was on the faculty for 41 years.

"Dr. Benjamin is recognized nationally for his contributions to improving education of both trainees and practicing physicians," said Alan Stiles, MD,

Brewer distinguished professor and chairman of UNC's Department of Pediatrics.

BENJAMIN

"With his participation and leadership, the American Academy of Pediatrics has developed programs for physicians in practice to access continuing education and residents in training to utilize educational materials and track training milestones using Web-based educational tools. He is also a superb physician, a clinical scholar and an important leader in the N.C. Children's Hospital.

"For these and many other reasons, I think Dr. Denny would be very pleased that Dr. Benjamin is the first to hold the Floyd W. Denny Jr. M.D. Distinguished Professorship."

Dr. Benjamin received his medical degree from Columbia College of Physicians and Surgeons in 1966 and then completed his residency at UNC in 1969. After three years in the U.S. Army in Germany, he returned to be the first fellow in hematology-oncology at UNC.

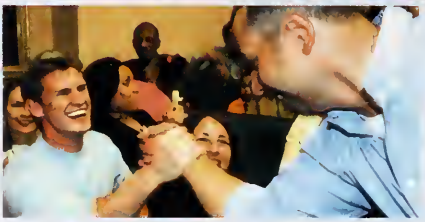
From 1973 until 1994, Dr. Benjamin worked at Pediatric Associates in Charlottesville, Va. At the community hospital in Charlottesville, Martha Jefferson Hospital, he was a member and then chairman of the executive committee, as well as the president of its medical staff. While in practice at Pediatric Associates, he developed an interest in office-based laboratories. This led to several national leadership positions in training physicians in the appropriate use and development of office-based laboratories.

He joined the faculty of the Medical College of Georgia in Augusta, Ga., in 1994. There, Dr. Benjamin developed a model program for resident training in outpatient pediatrics, received the medical school's Educator of the Year Award seven successive years and received the Regents' Teaching Excellence Award for Research Institutions in the State of Georgia in 2003.

Dr. Benjamin returned to UNC in August 2003 as division chief of general pediatrics and adolescent medicine. Since returning to UNC he has continued his national leadership in education programs sponsored by the American Academy of Pediatrics and has become a highly engaged educator of trainees and faculty.

He also is associate chairman for clinical affairs in the Department of Pediatrics and pediatrician-in-chief for the N.C. Children's Hospital.

special EVENTS



MATCH DAY

On March 16, students in the School of Medicine's graduating class took part in Match Day and learned where they will spend their years of residency training. Once again, UNC's students fared very well. They will be going all over the country to some of our nation's premier medical centers. A total of 141 UNC students were matched. The most popular specialty was Internal Medicine, in which 25 UNC students were matched. The next most popular specialties were Pediatrics (24), Family Practice (17), Psychiatry (15) and Surgery (13). Fifty-five percent went into a primary specialty and 38 percent will receive their training in North Carolina. Of the latter, 31 graduates were matched into residencies at UNC Hospitals.

ZOLLICOFFER LECTURE

Valerie Stone, MD, MPH, Director of Primary Care Residency Program and Associate Chief in the General Medicine Unit at Massachusetts General Hospital, presented the 26th Lawrence Zollicoffer Lecture on Feb. 17. Dr. Stone is third from left in photo.

COMMUNITY SERVICE DAY

75 students were inducted into the Eugene Mayer Community Service Honor Society on February 18th. Photos show students presenting their projects.

STUDENT RESEARCH DAY

Barry R. Bloom, PhD, Dean of the Faculty, professor of Public Health at the Harvard School of Public Health, presented the Landes/Merrimon Lecture as part of the 38th Annual Student Research Day. Photos show Dr. Bloom talking with students presenting their research projects.

UNC arthritis center receives gift of $3 million

A $3 million gift to UNC's Thurston Arthritis Research Center will support the center's efforts to recruit and retain top faculty as well as fund part of its research mission.

The gift includes $2.5 million from an anonymous donor to establish the Joseph P. Archie Jr. Eminent Professorship in Medicine. The remaining funds come from the William R. Kenan Jr. Charitable Trust and the North Carolina Distinguished Professors Endowment Trust Fund.

Courtesy Archie family

Dr. Archie, third from right, with his family.

Along with supporting an outstanding faculty member, the Joseph P. Archie Jr. Eminent Professorship in Medicine will create an endowment that provides permanent funding for the Thurston Center's research into autoimmune diseases, such as lupus and rheumatoid arthritis.

Dr. Dhavalkumar Patel, the center's director, said the professorship will bolster the center's ability to carry out its mission to investigate the causes, consequences and treatments of arthritis and autoimmune diseases, and to reduce their impact on patients, their families and society.

"We are deeply grateful for this exceptionally generous gift in support of our research objectives," Dr. Patel said. "This endowment will enable our center to continue our fight to understand how autoimmune disorders work. Only by understanding the mechanisms of immunologic and autoimmune disorders can we determine the best approach for treatment, management and, ultimately, prevention."

The Joseph P. Archie Jr. Eminent Professorship in Medicine is named for Dr. Joseph Archie Jr., a 1968 alumnus of the UNC School of Medicine who served as past president of the UNC Medical Co-Founders club. The anonymous donor was inspired to honor Dr. Archie in recognition of his 20-plus years as a dedicated and compassionate vascular surgeon in Raleigh, N.C., where he served in private practice since 1981.

Throughout his career, Dr. Archie remained interested in teaching and research, serving as both clinical professor of surgery at UNC and adjunct professor of mechanical engineering at N.C. State University. He has published 135 articles in peer reviewed surgical and biomedical engineering journals and written 20 book chapters.

Dr. Archie is a past president of The Southern Association for Vascular Surgery and a past recorder of The American Association of Vascular Surgery (Society for Vascular Surgery). He currently serves on the editorial board of "*The Journal of Vascular Surgery*" and the boards of The Medical Foundation of North Carolina and the N.C. Jaycee Burn Center.

Endowed professorships rank among UNC's highest priorities. The level of eminent professorship was created in 2001 to address the urgent need to retain and recruit the top scholars and teachers in their fields. Because faculty recruitment and retention are a top priority, the William R. Kenan Jr. Charitable Trust and the North Carolina Distinguished Professors Endowment Trust Fund will provide matching funds to establish five of these professorships.

The Thurston Arthritis Research Center was chartered in 1981 by the UNC School of Medicine as a Multipurpose Arthritis and Musculoskeletal Diseases NIAMS-supported Center.

The gift to the center counts toward the university's Carolina First Campaign goal of $2 billion. Carolina First is a comprehensive, multi-year, private fund-raising campaign to support Carolina's vision of becoming the nation's leading public university.

First Allied Health Professorship established at UNC

A friendship between Maynard and Carolyn Sauder of Archbold, Ohio, and David and Dee Yoder of Chapel Hill that began when they were students in a midwestern college over 50 years ago has produced the first endowed professorship at UNC's Department of Allied Health Sciences. The David E. and Dolores J. (Dee) Yoder Distinguished Professorship is being established by the generosity of the Sauders to stand as a perpetual tribute to the dedicated professionalism and skilled teaching and research of David E. Yoder, PhD, and the steadfast support of his wife, Dee. "We are thrilled to be able to honor David's national leadership in the field of communicative disorders and to inspire and educate future generations of highly motivated young people at the UNC-Chapel Hill's Division of Speech and Hearing to improve the lives of people with communicative disabilities," Maynard Sauder said.

The Sauder and Yoder families have remained close even though their lives have taken very different paths. The Sauders returned to Archbold after college to work at the family's business, Sauder Woodworking Company, while the Yoders moved to Delaware where David began his professional career as a speech-language pathologist prior to pursuing a Ph.D. in communication sciences and disorders.

Over the years, the families stayed in touch through frequent phone calls, letters, and family vacations. The Sauders were very pleased when Dr. Yoder advised their then high school-aged daughter Debbie as she considered her future career in speech-language pathology.

Debbie launched a very successful 20-year career as a speech-language pathologist in California, Texas, and Ohio. "Dr. Yoder cared about me. He encouraged me as a teen-ager to pursue a career that would empower me to actually improve the quality of people's lives by helping them to more effectively communicate and to share their souls with others," said Debbie Sauder. "My parents' gift to endow the Yoder Professorship will help others to continue this important work."

The Saunders and Yoders joined together in creating the first endowed professorship in Allied Health.

Dr. Yoder was formerly chair of the Department of Allied Health Sciences and is a professor in the Division of Speech and Hearing Sciences. He established the Center for Literacy and Disability Studies at UNC, a move that sparked the development of a new and significant field of research and practice within the Augmentative and Alternative Communication arena and the discipline of Communication Sciences and Disorders.

For more information, contact Dr. Karen Erickson, the Center's Director, at (919) 966-8828 or karen_erickson @med.unc.edu.

Mitchell Loyalty Fund Limited Scholarship established in Physical Therapy

Thomas V. Mack, MS '82, has established the Mitchell Loyalty Fund Scholarship for students enrolled in the department's division of physical therapy. The time-limited scholarship is named in honor of Dr. Marlys Mitchell, the first program director of the division of occupational therapy. Under Dr. Mitchell, the division became recognized as one of the first entry-level master's programs that was not taught beside an undergraduate entry-level program.

"Dr. Mitchell was my advisor and was very supportive of me during my time at UNC," Mack said. "It is my way of letting her know just how much she meant to me personally and professionally."

Mack is currently the chief operating officer of EnduraCare Therapy Management, Inc. in Farmington, Conn.

EnduraCare provides contract therapy staffing and management to acute care hospitals, long term care facilities, and physician groups. The company provides physical therapy, occupational therapy, and speech therapy staffing and management services in more than 270 facilities in 23 states.

"Doing this has given me a real sense of satisfaction. I only wish I had done it earlier," Mack said. "This is my way of showing respect and appreciation for the education I received at UNC."

Mack hopes to connect with his former classmates to help support the scholarship beyond its initial four-year commitment and to see it grow. "There is a serious need for more people to be going into occupational, physical and speech therapy," he said. "One of the best ways to recruit kids into these fields is to let them know that there will be financial support from the alumni."

The first student to receive Mack's support was Laura Parrish in the fall of 2005. Parrish is currently studying occupational therapy in the UNC School of Allied Health Sciences and hopes to one day work in the field of geriatrics. According to Parrish, receiving the scholarship was both a help and an honor.

"It is quite humbling to be recognized by the faculty with this scholarship," Parrish said. "This support will allow me to better focus on my studies and in turn be a better therapist. I cannot express enough gratitude for what I have received."

Elizabeth Edwards headlines annual Lineberger luncheon

Elizabeth Edwards, the wife of former U.S. Sen. John Edwards, the 2004 Democratic vice presidential candidate, addressed the annual Lineberger Club luncheon on Jan. 7.

In a rare public appearance, Mrs. Edwards shared with the group her recent experience with breast cancer and thanked more than 260 donors to the UNC Lineberger Comprehensive Cancer Center for their support, which has advanced research and enhanced UNC's team approach to cancer care.

Pictured, front from left, are Dr. Rich Goldberg, Lineberger associate director, Mrs. Edwards and Dr. Etta Pisano. Second row, from left, are Dr. Lisa Carey, UNC Breast Center co-director; Dr. Shelley Earp, Lineberger director; and Dr. William Roper, CEO of UNC Health Care and dean of the UNC School of Medicine.

Event raises $85,000 for Family House, National Marrow Donor Program

More than 500 people gathered in Morehead City on Feb. 25 to celebrate the life of Bert Brooks, hear a concert by the Hawaiian group HAPA and raise money for two of Bert's favorite causes. The event raised close to $85,000.

Bert loved Hawaii, the Aloha spirit, everything tropical, and HAPA was one of his favorite groups. Proceeds from the concert support both Family House, a hospitality house in Chapel Hill for critically ill patients undergoing long-term treatment at UNC Hospitals, their families and caregivers, as well as the National Marrow Donor Program.

Shown here, from left, are Dr. Tom Shea, professor of medicine and director of the UNC Bone Marrow and Stem Cell Transplantation Program; Gina Brooks, widow of Bert Brooks; and Dr. Jon Serody, associate professor of medicine with the UNC Transplantation Program and Bert's physician.

Drs. Shea and Serody are members of UNC Lineberger Comprehensive Cancer Center.

from the president

Dear Alumni and Friends:

As we can all recall, the medical school years are marked by total immersion into the process that leads to a medical degree. Not only can the academic rigors of medical training become daunting, but future physicians must commit to selfless devotion despite fatigue and must become accustomed to extended time away from their families. Because of these life-changing demands and the physical and emotional commitment required, it may be possible to lose one's perspective into how a medical career should function in larger society, into how we should interact with our respective communities in the process of providing health and well being.

Fortunately, our school understands the notion that the practice of medicine does not exist in a vacuum and that our students need the guidance and the opportunity to cultivate behaviors of community service and volunteerism that can serve them throughout their careers. Having students participate in local community activities while in training can serve local unmet needs and can place our school and the university in a favorable light. More importantly, however, sowing the seeds of volunteerism during our students' formative years can engender life-long behaviors that will serve them well wherever their careers lead them. This provides needed guidance into where the profession of medicine should fit into the larger system as a whole.

I remember with great satisfaction my participation in the burgeoning EMS system in Orange County before and during my medical school years, and I do believe that has led to decisions to remain involved in community activities throughout my career. In my era, outside of the SHAC clinic that provided local medical care by students, organized efforts to foster community involvement were few. Today, the culture of community service is much more developed and nurtured. In fact, more than 90 percent of our medical students have made a commitment to some type of community service.

Beginning in 2005, students in the School of Medicine began selecting some form of community service as part of their new-student orientation. Further testament to the degree to which our school fosters such service commitments is that an annual Community Service Day is celebrated. During this day, students who have demonstrated an outstanding commitment to community service during their medical school careers are recognized by the Eugene S. Mayer Community Service Honor Society. Selected students then present a poster or deliver a multimedia account of their community service involvement. Your Loyalty Fund has also provided support for these and other school service projects that have been organized by students and house staff.

These efforts by our students, which are fostered and nurtured by our faculty, are concrete examples of the strength of our institution, one of the things we do best and of which we can all take pride. We as alumni have also demonstrated what we do best. Over the life of the Loyalty Fund (and under the guidance and tutelage of John Foust, MD) the alumni have begun an ever-increasing commitment to support for all aspects of school life.

Although this alumni involvement begins with concrete financial support, these acts serve to bind us to our school, to increase our interest and give us new "ownership" in our school's future. In this way, such alumni "community activism" brings us full circle with the commitments our students are beginning in their community service projects. Such continued involvement by students and alumni alike will strengthen our institution and will be necessary as we strive towards the goals outlined by Dean Roper. We should all be pleased with our progress so far.

Sincerely,

William M. Herndon, Jr., MD, '81, FACC

CME/Events Calendar

May 10 – Chapel Hill
Tenth Annual John Atkinson Ferrell Prize and Lectureship

June 10 – Chapel Hill
Medicolegal Seminar

June 14-18 – Amelia Island, Fla.
Carolina Refresher Courses

June 16-17 – Chapel Hill
Womack Society meeting

June 23-24 – Chapel Hill
Fourth Annual Landes Symposium on Genitourinary Malignancies and Urologic Diseases

June 26-27 – Chapel Hill
Pancreatic Cancer

July 20-23 – Amelia Island, Fla.
Heart Failure Management

Sept. 7-8 – Chapel Hill
Lipid Clinic Training Program

Sept. 15-16 – Chapel Hill
N.C. Cardiovascular Update

Sept. 30-Oct. 1 – Chapel Hill
Updates in Ophthalmic Oncology

Sept. 30 – Chapel Hill
Review and Update on Breast Pathology

Oct. 27-28 – Chapel Hill
Fall Alumni Weekend

Nov. 3-4 – Chapel Hill
Pelvic Pain

Nov. 16 – Chapel Hill
Eating Disorders

Nov. 17-19 – Chapel Hill
Psychiatry Across the Ages/George Ham Symposium

For more information, go to
www.med.unc.edu/alumni and
www.med.unc.edu/cme

Estate Planning Notice

Many individuals would like to make a major gift to the UNC medical center, but cannot commit current assets for such a purpose. Through a will, however, anyone can make a more significant gift than they might ever have thought possible by designating a specific sum, a percentage, or the residue of their estate for the benefit of the medical center.

To provide a bequest, simply include a paragraph in your will naming The Medical Foundation of North Carolina, Inc. as a beneficiary. For example:

"I give, devise and bequeath (the sum of $_____) or (_____ % of my estate) or (the residue of my estate) to The Medical Foundation of North Carolina, Inc., a 501(C)(3) created to maintain funds for the UNC medical center with principal offices located at 880 Martin Luther King, Jr. Blvd., Chapel Hill, North Carolina."

This language creates an unrestricted bequest for use by the medical center when and where the need is greatest, or you may specify that your gift be used for a particular purpose.

For further information on bequests, contact Jane McNeer at (919) 966-1201, (800) 962-2543, or Jane_McNeer@unc.edu.

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Winter 2006

UNC Medical Bulletin

A publication for alumni and friends
of the University of North Carolina at Chapel Hill School of Medicine and UNC Health Care

DIGGING IN!

As young leukemia survivor **REECE HOLBROOK** helps UNC break ground for the new **N.C. CANCER HOSPITAL**, we take a look at the **FUTURE** of cancer treatment and research

Roy Williams drops in on the N.C. Children's Promise

from the dean

Dear Friends and Alumni:

This past September we broke ground and began construction on the new North Carolina Cancer Hospital, moving this long-awaited facility closer to reality for our cancer patients and their families. The groundbreaking ceremony occurred just one year after Governor Easley signed legislation authorizing $180 million for the construction of this much needed institution.

The N.C. Cancer Hospital marks the proud beginning of a renewed commitment to the health of our loved ones and fellow citizens who face the reality of cancer every day. Many years of planning, preparation, advocacy and sheer tenacity produced this great outcome for the people of this state. The new N.C. Cancer Hospital will integrate the outstanding quality of care we currently deliver with a facility that allows for the expansion and exploration of new approaches in cancer care. It will be the clinical home of the UNC Lineberger Comprehensive Cancer Center.

My friend, Reece Holbrook, helped us break ground on that beautiful September morning. Three-and-a-half-year-old Reece is a current patient at UNC. Last year, he was diagnosed with acute lymphoblastic leukemia. He is now in the maintenance phase of a three-year treatment plan. Reece's father, Chad, is an assistant baseball coach at UNC and his mother, Jennifer, works in the men's basketball office as an assistant to Roy Williams. Obviously, Reece is destined to be a Tar Heel star athlete!

Reece is still a frequent visitor to our existing treatment clinic. The space is cramped for an active 3-year-old, but he and his fellow pediatric chemo patients make the best of it. However, there is no doubt that the new facility will serve children and their families much better.

For the patients like Reece that we have the privilege of serving here at UNC, care is built on our strong foundation of leadership in cancer treatment and research. The Lineberger Comprehensive Cancer Center is one of only 39 National Cancer Institute–designated Comprehensive Cancer Centers in the country. It ranks in the top 10 institutions nationally in the number of grants from the NCI, and many of the latest advances in cancer diagnostics and therapy are available. It is increasingly difficult, however, to provide leading-edge technology and therapies in a reconditioned and crowded former 1950s tuberculosis sanatorium.

The groundbreaking could not have come sooner. We must work quickly to meet the growing needs of cancer patients in our state, which now total more than one quarter of a million people. Over the next 30 years, the aging of the population will nearly double the number of North Carolina cancer cases seen each year. The fact that people are discovering the attractiveness of North Carolina and retiring here is also contributing significantly to the increase in cancer cases in this state.

This new facility will include many innovative features, such as expanded and enhanced multidisciplinary clinic space, specially designed facilities for high-technology imaging and treatment, a 50-bed inpatient unit and state-of-the-art infusion suite, teleconferencing facilities to connect UNC and community-based physicians in patient treatment planning, an expansion of space to serve the growing number of pediatric cancer patients, and a healing environment emphasizing natural light, indoor courtyards, gardens and pleasant interior spaces.

The UNC Health Care System exists to serve the all people of North Carolina. That is our mission. The new North Carolina Cancer Hospital will allow us to combine the benefits of greater access to cancer care with the world-class caregivers we have at UNC. This combination of strengths means better care for those we serve and prepares our institution to lead in the worldwide battle against cancer.

Sincerely,

Bill Roper

William L. Roper, MD MPH
Dean, School of Medicine
Vice Chancellor for Medical Affairs
CEO, UNC Health Care System

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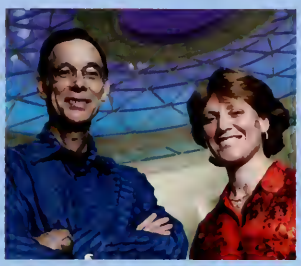

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on the cover

Leukemia survivor Reece Holbrook of Durham, N.C., helped UNC officials break ground for the new N.C. Cancer Hospital. *(Photo by Brian Strickland)*

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Contributing Writers

Brian Strickland
Photographer

Meeting the challenge

With work under way for the new North Carolina Cancer Hospital, UNC physicians and researchers take a look at the future of the fight against cancer – and the role they will play

Photos by Brian Strickland

Dean Bill Roper welcomes guests to the groundbreaking of the new N.C. Cancer Hospital.

By Karen Stinneford

"As you pour this foundation, from my perspective, I see you creating new hope."

So said Andrew von Eschenbach, MD, director of the National Cancer Institute, at the groundbreaking ceremony last September for the new N.C. Cancer Hospital.

His words summed up the challenge and promise of cancer research.

"I see you being the source of an opportunity, by bringing together the greatness of the Lineberger Cancer Center and its research and all the effort … that has truly made it one of this nation's most outstanding comprehensive cancer centers," he said. "And then combining that with a state-of-the-art clinical facility … you will be a critically important part of the quest, the goal that we have set for the nation: to eliminate the suffering and death due to cancer."

Given that charge, cancer researchers at UNC feel optimistic about the progress that's taking place. And while not everyone thinks cancer can be converted from killer to chronic disease by 2015, UNC experts are confident that tremendous advances in prevention, detection and treatment will occur by then.

Some of those advances undoubtedly will take place within the walls of the new N.C. Cancer Hospital, a $180-million facility being constructed in front of the UNC Hospitals complex. The hospital, scheduled to open in late 2009, will provide state-of-the-art clinical care and research capabilities under one roof.

UNC's credentials in the area of cancer research and treatment are impressive. Its Lineberger Comprehensive

Cancer Center is one of 39 NCI-designated comprehensive cancer centers in the country. Recognized for research in major diseases, Lineberger is one of the original four Specialized Programs of Research Excellence (SPORE) in breast cancer, and is one of four SPOREs in the nation for gastrointestinal cancers. Lineberger is also a Center of Excellence for prostate cancer.

As of October 2005, Lineberger scientists attracted more than $169 million in research funding, making UNC one of the nation's best in National Cancer Institute and National Institutes of Health funding. With 260 faculty members representing more than 25 different departments and disciplines, Lineberger is the largest research entity at UNC.

"Some people think we are losing the war against cancer because the incidence rose from 1950 to the mid-1990s," said H. Shelton Earp III, MD, director of the cancer center and Lineberger professor of medicine at UNC.

While Dr. Earp attributes much of the increase in cancer incidence to greater longevity, "We are also diagnosing cancer earlier and treating it better. We're entering an era in which we have a better understanding of how cancer starts, what genes make people susceptible to cancer, and what genes are mutated in common cancers. The latter can be targeted with new therapies."

UNC experts say the challenge of curing cancer lies within the nature of cancer itself – uncontrolled cell growth. Healthy cells carefully regulate cell division and growth before dying off, but cancer cells grow unabated, eventually overtaking their healthy counterparts.

"That's the general theme in all cancers – mutations and derangements of normal genes. Regulation of cell growth becomes disordered," Dr. Earp explained. "As we learn more we understand that cancers behave very differently in different people and require individualization of therapy."

So while "cancer" may be one disease to a lay audience, all cancers are not the same. Some researchers speculate that more than 200 forms of cancer will be the result of hundreds of different genetic mutation patterns, each requiring an individualized response.

"For that reason, I don't know if we'll eliminate cancer altogether," said Joel E. Tepper, MD, professor and chair of radiation oncology and Hector MacLean Distinguished Professor in Cancer Research.

"The vast amount of knowledge we need and the huge variety of diseases we treat are limiting factors in 'curing' cancer. It's possible we'll uncover universal mechanisms that could be applied to preventing or treating all cancers, but I think it's just as likely that we will uncover more unique treatments."

Dr. Earp concurred. "Now, because of the work of UNC's Chuck Perou and Lisa Carey, we know that breast cancer is at least four different diseases and more likely six or seven. As we better understand molecular differences, we can respond by treating patients in a more precise way. Instead of saying, 'You have breast cancer,' we can say, 'You have this subtype of breast cancer, which requires this specific treatment.'"

When it comes to discovering new advances in the prevention, diagnosis and treatment of cancer, UNC faculty members agree that genetics is the foundation on which they will take place. To date, surgery, chemotherapy and radiation have been the main weapons against cancer. Each has the unintended consequence of damaging healthy cells besides unhealthy ones. But researchers hope that will change, so that the next generation of medical response will target only cancerous cells.

"It's not an exaggeration to say that medicine is entering a new phase – the ability to treat individual patients, as opposed to treating diseases," said James P. Evans, MD, PhD, director of adult genetic services and leader of the UNC Lineberger Clinical Cancer Genetics Program. "We've known for a long time that people differ in their susceptibility to the ill-effects of drugs and the benefits of drugs, but we've been unable until recently to understand those differences. With progress in genetics, that is changing and it is bringing the prospect of truly individualized medicine."

Vice Dean Robert Golden, left, with Eric Munson, former UNC Hospitals president, at the groundbreaking.

The genetics of prevention

While some causes of cancer remain unknown – brain cancer, for example, continues to perplex scientists as to when and why it occurs – many environmental and lifestyle triggers are well understood. Physicians have tried teaching patients about risk factors and persuading them to make better lifestyle choices. But education alone isn't working.

"We've known about the serious risks of smoking for years now, but 24 percent of adults still smoke," Dr. Tepper said. "If that dropped to zero percent, it would have a significant effect, especially on lung cancer, but the reality is it won't. Likewise, we know we need to exercise more and eat healthier foods, yet obesity is at an all-time high. It's hard to get people to change their lifestyles."

What if, instead of telling a patient who smokes cigarettes she might develop lung cancer, a physician could run her DNA profile and learn that given her particular genetic makeup, she has a 100-percent chance of developing lung cancer unless she quits immediately?

"The Holy Grail of cancer research is a blood test that would accurately predict who is in the early stages of developing cancer," Dr. Earp said. "It all comes back to understanding the biology of early cancer – what's different about an early cancer cell and a regular cell and what about that difference could show up in the blood of an individual? If we could answer those questions, we could develop very effective means of prevention. It's a hot area of research, but we aren't there yet."

Ground broken for new N.C. Cancer Hospital at UNC Hospitals

By Tom Hughes and Will Arey

Construction has begun on the new N.C. Cancer Hospital, which will rise in front of the existing UNC Hospitals complex. In September, before construction fences were erected, the Hospitals held a gala groundbreaking ceremony.

"Today marks the proud beginning of a new commitment in a fight for the health of our loved ones and fellow citizens who face the reality of cancer every day," said William L. Roper, MD, MPH, dean of the UNC School of Medicine, CEO of UNC Health Care and vice chancellor for medical affairs. "Starting today, we will be able to see the progress being made to bring North Carolinians the greatest cancer treatment facility in the nation."

The guest speaker for the groundbreaking ceremony was Andrew von Eschenbach, MD, director of the National Cancer Institute. Just days before the groundbreaking, President George W. Bush designated Dr. von Eschenbach the acting commissioner of the U.S. Food and Drug Administration.

"As you pour this foundation, from my perspective, I see you creating new hope," Dr. von Eschenbach said during the ceremony.

"I see you being the source of an opportunity, by bringing together the greatness of the Lineberger Cancer Center and its research and all the effort that has been done that has truly made it one of this nation's most outstanding comprehensive cancer centers, and then combining that with a state-of-the-art clinical facility, that you will contribute and you will be a critically important part of the quest, the goal that we have set for the nation, to eliminate the suffering and death due to cancer for everyone," Dr. von Eschenbach said.

Richard Goldberg, MD, chief of Hematology/Oncology at UNC Health Care and associate director for clinical research at the UNC Lineberger Comprehensive Cancer Center, said it was "an honor to have Dr. von Eschenbach visiting us on this occasion." Dr. Goldberg will serve as medical director of the N.C. Cancer Hospital.

"His visit speaks to the importance of this hospital," Dr. Goldberg said. "It's going to be something that all North Carolinians can be proud of. Unfortunately, many North Carolinians will also need to avail themselves of our services at some point in their life."

The N.C. Cancer Hospital, tentatively scheduled to open in late 2009, will provide complete cancer care and research facilities in one facility. "Everything a cancer patient needs, with the exception of an operating room, will be under one roof," said Dr. Goldberg. "The new building will allow us to bring resources to the patient instead of having to take the patient to the resources."

Conferencing facilities in the N.C. Cancer Hospital also will allow UNC's doctors to communicate their clinical and research findings across the state, nation and world in a minute's time.

"We envision the Cancer Hospital becoming a hub that reaches out to doctors across the state," said Shelton Earp, MD, director of Lineberger. "This building will enhance our ability to move fundamental research directly into patient applications."

A variety of patient applications will be present in the new facility, including more experimental treatment options, including a developmental therapies unit. "We often run out of conventional options for treatment before the patient is ready to stop fighting against the cancer," Dr. Goldberg said. "This developmental thera-

Center of attention: N.C. Cancer Hospital model

pies unit will allow us to treat people with the newest drugs just coming into the clinical arena."

To maximize efficiency and layout, staff working in the building, as well as patients, were actively involved in the design process, said Mary Beck, UNC Hospitals' senior vice president of planning.

"Philosophically, we have a strong sense that users need to be involved in the planning aspect of the project," Beck said. "The most incredible thing about this project has been the cohesiveness of the oncology staff. They are not arguing about who gets an extra square foot of space. Instead, it's been more of, 'We need a square foot to make the entire layout more seamless'."

Throughout the design process, the architects would visit Chapel Hill in weeklong increments. "It was an incredibly intensive process," Dr. Goldberg said. "But in the end, the design is ours in terms of functionality and ambience translated through the architect's eyes and expertise."

It is the ambience of the building, for both patients and staff, that will set it apart, Dr. Goldberg said. "We're balancing both optimal patient care and optimal ambience."

The need for a facility like the N.C. Cancer Hospital is becoming increasingly urgent, Earp said. "Cancer as a diagnosis is increasing as our population ages," he said. "We're almost in a race against time as patient population and desire to visit increases. This building will help us catch up."

That catch up will begin in late 2009, when the N.C. Cancer Hospital is scheduled to open its doors. With 320,000 square feet of space and seven floors dedicated entirely to cancer services, Goldberg sees the hospital being a boon not just to North Carolina but the east coast as a whole. Also accompanying the $180 million Cancer Hospital, which will sit in front of the N.C. Neurosciences Hospital, will be a physicians' office building that will sit across Manning Drive.

On Dr. Goldberg's office wall hangs a framed picture featuring himself, N.C. Gov. Mike Easley and NASCAR team owner Rick Hendrick, of Charlotte, N.C. The photo was taken Aug. 5, 2004, when the governor signed the bill that provided bill funding for the N.C. Cancer Hospital, in a ceremony at UNC Hospitals.

"It's very symbolic that Rick Hendrick accompanied the governor to the bill signing," Dr. Goldberg said. "He had cancer and went to Texas for treatment because he didn't feel certain that he would get cutting-edge cancer care in North Carolina. Now, with a dedicated cancer facility at UNC, people with the disease will have the assurance that they will get cutting-edge therapy right here."

The genetics of diagnosis

From the perspective of Robert S. Sandler, MD, director of the Center for Gastrointestinal Biology and Disease and division chief of gastroenterology and hepatology, the fact that Americans die of colon cancer at all represents an enormous failure for both the medical community and society at large.

"Our biggest obstacle to earlier and better diagnosis is apathy," he said.

Colonoscopy can prevent up to 70 percent of all cases of colon cancer. Yet only 40 percent of Americans who should have gotten a colonoscopy have done so. (Current guidelines recommend that starting at age 50, everyone get one every 10 years.) By contrast, 80 percent of women who should have gotten a mammogram to screen for breast cancer have done so.

"People are dying from embarrassment – they just don't want to get the test," he said. "Or it may be ignorance – women, for example, who think it is a man's disease."

Dr. Sandler said new diagnostic tests being developed hold promise. More sensitive computed tomography (CT) scans – which use X-rays to look at the inside of the body – might result in a "virtual colonoscopy" so that the colon can be analyzed without requiring a scope. Or colorectal DNA tests could be developed that detect the presence of abnormal cells in the stool, alerting physicians to a potential problem.

"We want to create even better methods of early detection," he said. "The understanding of, and awareness of, early detection – such as mammograms and colonoscopy – is really starting to take hold and save lives. We aren't where we want to be, but those things are working in our favor."

Prostate cancer survivors Carnell and Oscar Evans celebrated the groundbreaking.

The genetics of treatment

"To realize the goal of individualizing clinical care for a cancer patient rather than using generic therapies for a disease, two issues in the genetics story are relevant," said Richard Goldberg, MD, Lineberger associate director of clinical research, director of Oncology Services and division chief of hematology and oncology. "This new field of endeavor is termed 'Individualized medicine' and is relevant to many diseases and not just cancer.

"What is unique to cancer is that we are dealing with two different genomes. The first is the genetic make up of the DNA within a given tumor. While that DNA is derived from the genes of the host, tumor cells have DNA that has been fundamentally altered in ways that give cancer cells a growth advantage."

He added that NIH has recently unveiled a new program to fund research to examine the genome of common cancers. The genetic make up of a cancer is also a moving target because ongoing therapy often leads to further genetic changes that permit the tumor cells to develop resistance to therapies.

The other side of the genetic story is that of the host. The evolving field of pharmacogenomics focuses on the DNA of the patient with respect to the way that person reacts to chemotherapy drugs. Variations in the genetic make-up of the U.S. population have now been identified that explain why some people are likely to have few or severe side effects from a given therapy. He explains, "In the best of circumstances in the future we will profile the tumor and profile the patient so that we can intelligently design optimal treatments for their disease. We will choose drugs that will not cause undue toxicity but meanwhile will be especially effective against that particular tumor. This area of inquiry will likely revolutionize the way we manage cancer in the foreseeable future."

Of the women who learn that they have breast cancer this year, 40,000 of them will have the kind of breast cancer in which the HER-2 gene is mutated. One treatment is the drug, Herceptin, which has been proven to cut deaths by about one-third.

"Approximately 4,000 to 6,000 women will not die from their breast cancer because of medicine's knowledge about that particular genetic abnormality and our ability to create and use a targeted agent to treat it," Dr. Earp said. "We are adding a fourth armament in our war against cancer – now we are talking about true biological reversal."

As proof of how confounding genetic mutations can be, Lineberger researcher Young Whang, MD, PhD, reported in the journal Cancer Research last year that the same HER-2 associated with breast cancer is also responsible for the recurrence of prostate cancer. However, the same Herceptin that is so effective against breast cancer had no effect on prostate cancer. Whang reported that it took other chemical agents to inhibit HER-2 prostate cancer cells in experiments.

The implication is that although researchers can find drugs to inhibit the growth of a certain kind of cancer cell, each genetic mutation is so unique that it will take painstaking research to find a solution to every one.

Another promising treatment advance is the new drug, Gleevec, for chronic myeloid leukemia (CML). Researchers discovered that CML occurs when two chromosomes break apart and then rejoin together to form a new, mutated gene. The mutated gene gives off an enzyme that tells cells to divide and grow continuously. Gleevec blocks that signal, and the cancer cells stop proliferating.

Of Gleevec and Herceptin, Dr. Earp said, "those two agents are just thrilling for people who care for cancer patients and we hope it's the beginning of an avalanche."

UNC recently received nearly $4 million from NCI to establish the Carolina Center of Cancer Nanotechnology Excellence. It is one of seven institutions in the country now part of the NCI Alliance for Nanotechnology in Cancer. The grant will fund emerging developments in nanotechnology to improve cancer diagnostics and imaging and therapy.

"This day could not have come sooner, as we must work quickly to meet the growing needs of cancer patients in our state," Dr. Roper said.

Rudy Juliano, PhD, director of the center and professor of pharmacology, said the idea behind nanotechnology is to make structures small — to the point where devices could be smaller than cells. Such technology would give researchers a chance to have man-made devices interact with cells on their own terms.

"We'd like to make nanoparticles small and smart so they interact selectively with tumor cells or blood vessels within tumors and eventually convey drugs to those sites so we destroy the tumors or blood vessels," he said. "This will provide new tools for us. Cancers are so heterogeneous — they change their behavior, they change and regress, they become resistant to drugs — so this provides an entirely new way of interacting with cells."

Added Dr. Evans, "What we hope will come next is a better-defined understanding of who will respond to a particular treatment and who will not. Our treatments in this day and age are still pretty rough. I won't minimize the magnitude of the challenge — cancer is going to be a hard human reality for some time. But we continue to make progress. I am optimistic."

Karen Stinneford is a freelance writer and marketing communications consultant. Formerly public relations manager at UNC Health Care, she lives in Cary, N.C.

"I see you creating new hope," Dr. von Eschenbach told the audience.

N.C. Sen. Jeanne Lucas, a cancer survivor, drew enthusiastic applause when she said, "Don't I look good?"

Christopher Fordham, MD, '49 former School of Medicine dean and former UNC-Chapel Hill chancellor, greets friends.

Giving back

Alum with long, deep ties to School of Medicine gives the largest-ever single donation to the school for cardiovascular research

By Tom Hughes

Hugh A. "Chip" McAllister Jr., MD '66, has long been a highly respected and highly accomplished leader in cardiovascular pathology.

He retired from active practice in 2000, after serving for 16 years as the founding chair of the Department Cardiovascular Pathology at the Texas Heart Institute St. Luke's Episcopal Hospital in Houston. This followed his distinguished career in the U.S. Army Medical Corps, where served for 13 years as chair of the Department Cardiovascular Pathology at the Armed Forces Institute of Pathology in Washington, D.C., from 1971 to 1984.

But even after he "retired," Dr. McAllister continued to publish in his field and to serve as editor of the Images section of the American Heart Association journal *Circulation*.

Last year, Dr. McAllister and his wife, Angela, decided to make an impact on cardiovascular pathology in another way. They pledged the single largest gift ever from an alumnus of the UNC School of Medicine, to establish the Hugh A. McAllister Jr., MD Endowment for Cardiovascular Biology. The endowment will be used to fund a new cardiovascular research center at UNC.

"We hope to turn this into one of the nation's leading centers for cardiovascular research," Dr. McAllister said during a recent trip to Chapel Hill. "The philosophy here is not bricks and mortar, but to get young scientists, the best in the country, to come here."

"We chose the University of North Carolina for several reasons," he continued. "One of them is we love the state and love the university and we love the medical school. But in addition to that, the leadership you have in the Department of Medicine in Cardiology is perfectly set to

Hugh A. "Chip" McAllister Jr., MD '66

Hometown: Born at Walter Reed General Hospital in Washington, D.C., grew up in Lumberton, N.C.

Undergraduate education: Davidson College, Davidson, N.C., B.S., 1961

Medical education: UNC School of Medicine, M.D., 1966, followed by internship and residency at Walter Reed Army Medical Center in Washington, D.C., 1966-1971

Primary career appointments: Chair of the Department of Cardiovascular Pathology at the Armed Forces Institute of Pathology in Washington, D.C., 1971-1984; Chair of the Department of Cardiovascular Pathology, Texas Heart Institute at St. Luke's Episcopal Hospital in Houston, Texas, 1984-2000.

Noteworthy honors and awards: UNC Medical Alumni Association Distinguished Service Award (2003), Society for Cardiovascular Pathology Distinguished Achievement Award (2001), Legion of Merit of the United States of America (1984).

Family: Married to Angela McAllister, has two daughters, Anne Kimberly Usrey, 39, and Dana Leigh McAllister, 37. His father, Hugh A. McAllister Sr., MD, earned his Certificate of Medicine at UNC in 1935.

Personal interests: Has a great love of nature and the outdoors, works with the World Wildlife Fund as a member of its National Council and chair of its Marine Leadership Committee.

do this type of research and bring benefit to the American people and the people of the state of North Carolina.

"They have an openness here that you don't find in many places, where there's interdisciplinary interaction between pathology, pharmacology, physiology, biochemistry and genetics. All of this is going to come together, I think, to bring very exciting changes in the morbidity and mortality of cardiovascular disease," Dr. McAllister said.

"We're making this gift because of my interest in cardiovascular disease, and because of the team that Cam Patterson's put together here in cardiovascular biology. I think it's a very exciting group of young people and it's our desire to support them," he said.

Dr. McAllister's roots at the UNC School of Medicine run deep. His father, Hugh A. McAllister Sr., MD, earned his Certificate of Medicine at UNC in 1935. Dr. McAllister Sr. practiced obstetrics and gynecology in his hometown of Lumberton, N.C., for four decades before his death in 1978. He was honored with the School of Medicine's Distinguished Service Award in 1963, while his son was working towards his medical degree at UNC.

The son would distinguish himself soon thereafter. While he was a medical student, Chip McAllister received the school's most prestigious awards. These include the Senior Merit Award for the highest grade point average during his third year, the Deborah Leary Award for outstanding student research the following year and the Isaac Manning Award for the most outstanding achievement by a medical student during his four years in school.

His record of achievement continued through his internship and residency at Walter Reed Army Medical Center in Washington, with a fourth year of residency at the Armed Forces Institute of Pathology (AFIP). This was, quite literally, a return to where life began for Dr. McAllister. He was born in 1939 at what was then known as Walter Reed General Hospital, where his father completed his residency in obstetrics and gynecology.

At AFIP, Dr. McAllister quickly rose through the ranks to become director of the Division of Cardiovascular Pathology. In 1971 he was named chair of the Department of Cardiovascular Pathology and remained in that position until his retirement from the Medical Corps in 1984, at the rank of colonel. After his first "retirement," Dr. McAllister embarked upon a second career as founding chair of the Texas Heart Institute's Department of Cardiovascular Pathology.

His professional accomplishments are too numerous to provide a comprehensive listing here. Some of the more noteworthy items include:

- An impressive record of scholarly publications, including four textbooks and 39 chapters in other medical books
- An exhaustive atlas he compiled with co-author Dr. John Fenoglio in 1978, titled *Tumors* of the Cardiovascular System, which has been described as "a recognized classic in medical literature" and "a work of enduring usefulness"
- Many, many awards, including the Legion of Merit of the United States of America in 1984 and the Distinguished Achievement Award from the Society for Cardiovascular Pathology in 2001

Dr. McAllister has also been an active alumnus of the UNC School of Medicine, serving on the UNC Medical Alumni Council. In 1999, he created an endowed distinguished professorship in obstetrics and gynecology at UNC in honor of his father, who served as president of the UNC Medical Alumni Association in 1961.

But the honor of which he is perhaps most proud came in 2003. That year, the Medical Alumni Association honored Dr. McAllister with the Distinguished Service Award, exactly 40 years after his father received the same award.

Photos by Brian Strickland

Dr. McAllister and wife Angela take a deep interest in the School of Medicine.

Different paths, common goals

Two UNC faculty members are honored with a Medical Alumni Baird Distinguished Teaching Professorships

Photo by Brian Strickland

Stephen G. Chaney, PhD

Place of birth: Media, Penn.

Education: Duke University, BS in Chemistry, 1966; University of California at Los Angeles, PhD in Biochemistry, 1970; Postdoctoral Fellowship, Washington University School of Medicine, 1970-1972; UNC Teaching Scholars Program, 1994-1995.

Recent awards: UNC Medical Alumni Distinguished Teaching Professorship (2005), UNC School of Medicine Freshman Basic Science Teaching Award (2004-2005 academic year), UNC School of Medicine Freshman Basic Science Teaching Award (2002-2003 academic year).

Family: Married for 37 years. He and his wife, Suzanne, have one son, Marc, who is 26.

Hobbies: Tennis, hiking, health and fitness. He describes himself and his wife as "original health food nuts, from way back when. Trying to eat right and stay fit is certainly an important part of who we are."

AnnaMarie Connolly, MD

Hometown: Centerville, Mass.

Education: Mount Holyoke College, South Hadley, Mass., BA in Biological Sciences, 1986; Tufts University School of Medicine, Boston, Mass., Doctor of Medicine, 1991.

Recent awards: UNC School of Medicine Commencement Speaker (Graduation 2005), Leonard Tow Humanism in Medicine Award (2005), H. Fleming Fuller Award (2005), Wallace '69 and Phyllis Baird Medical Alumni Distinguished Teaching Professor (2005).

Hobbies: Kayaking, running and snow skiing.

Teaching philosophy: "To create an environment of respect where people feel they are heard."

By Tom Hughes

Stephen Chaney, PhD, and AnnaMarie Connolly, MD, have pursued very different career paths within the realm of academic medicine. Dr. Chaney is primarily a bench researcher who teaches basic sciences, while most of Dr. Connolly's time is devoted to patient care and clinical teaching.

But they share at least one thing in common: both are considered by their students in the UNC School of Medicine to be outstanding teachers. This is reflected in the fact that both were chosen for Medical Alumni Distinguished Teaching Professorships in 2005. And both say that their skill in teaching is not something that they necessarily had upon their arrival at UNC, but rather is something they have worked hard to develop ever since.

"We're not qualified, when we come in, to teach kindergarten," said Dr. Chaney, a professor in the Department of Biochemistry and Biophysics who joined the faculty in 1972. "We've never had any sort of training in teaching. So, for those people who go on to become good teachers, I think a lot of it is just because it's something we really enjoy.

"I do really enjoy teaching, and I've worked very hard to get good at it," he said. "I always like to try and convey the information in such a way that it's both interesting and understandable. In biochemistry, we're talking about some pretty esoteric stuff. So I put a great deal of thought into how to convey that information – how to keep the students interested and involved in the learning process."

According to his students, Dr. Chaney's efforts are paying off.

"Dr. Chaney is an excellent lecturer and possesses a masterful knowledge of his subject matter," said James Hlavacek, a first-year medical student. "But it is not these qualities which impress me the most. What impresses me the most about Dr. Chaney is his concern and responsiveness to the needs of his students.

"Whether it was answering questions from students with in-depth written responses or molding the course to better serve the needs of the students, Dr. Chaney always put his students first. He treats them as though they are his number one priority. I feel that this is what makes Dr. Chaney a special teacher that we are lucky to have at Chapel Hill," Hlavacek said.

Hlavacek is not alone in this opinion. Dr. Chaney has twice received the UNC School of Medicine Freshman Basic Science Teaching Award, for the 2004-2005 and 2002-2003 academic years.

As a researcher, Dr. Chaney's work has focused on the study of platinum anticancer drugs. In particular, his work in characterizing the mechanism of action of a drug called oxaliplatin, and how it is metabolized, played a key role in gaining U.S. Food and Drug Administration approval for the drug in 2002. The drug is now sold under the name Eloxatin, and it represents a significant advance in the treatment of colorectal cancer.

Dr. Connolly credits the development of her teaching skill, in large part, to the environment in the Department of Obstetrics and Gynecology, where she is an assistant professor in the Division of Urogynecology and Reconstructive Pelvic Surgery. She has been in that department since she first arrived at UNC for residency training in 1991, except for a two-year period when she was in private practice in Durham.

"This department values teaching from the get go," she said. "So I was the very fortunate recipient of a lot of instruction and role modeling on how to teach throughout the course of my residency, my fellowship, and to this day. Teaching is at the heart of what this department is all about."

With her new teaching professorship comes a new title: Dr. Connolly is now the Wallace '69 and Phyllis Baird Medical Alumni Distinguished Teaching Professor. (Wallace Baird, MD, is a 1969 graduate of the UNC School of Medicine.) But it is just the latest of many honors that Dr. Connolly has received for her teaching.

The School of Medicine's 2005 graduating class selected her to deliver the commencement address. In May of 2005, Dr. Connolly received the Leonard Tow Humanism in Medicine Award, which is presented by the Arnold P. Gold Foundation to the outstanding faculty member judged to be exemplary in his/her compassion and sensitivity in the delivery of care to patients and family members, as well as in their respect for colleagues. In 2004, she received three teaching awards: the School of Medicine's Teaching Excellence Award, the Hyman L. Battle Distinguished Excellence in Teaching Award in the Clinical Sciences, and the Droegemueller/Bowes Junior Faculty Award. She has received many other teaching awards dating back to 1994.

And as this article was being written, Dr. Connolly was notified that she would receive yet another award, the H. Fleming Fuller Award. Given annually in memory of Fuller, a Kinston physician and founding member of the UNC Hospitals' board who died in 1986, the award recognizes doctors who demonstrate compassionate patient care and excellence in teaching and community service.

Many letters of nomination for the Fuller Award were submitted on Dr. Connolly's behalf. One came from William Droegemueller, MD, chair emeritus of UNC's Department of Obstetrics and Gynecology and current director of evaluation for the American Board of Obstetrics and Gynecology.

"Dr. Connolly is an extremely bright, concerned and highly skilled professional," he wrote. "She is a superb teacher and an outstanding role model for young women entering academic medicine. AnnaMarie is charismatic and her enthusiasm is contagious. She is highly motivated as a clinician/teacher. Many medical students list AnnaMarie Connolly as the reason and the role model for their career choice of obstetrics and gynecology."

When asked how she felt to be receiving two such prominent honors at essentially the same time, Dr. Connolly, characteristically, shifted attention away from herself and insisted on giving credit to the Baird and Fuller families for establishing and supporting these awards.

"For me, to be receiving these two honors at the same time is a bit overwhelming, in a positive way," she said. "Each family has really committed a tremendous amount of their energy and themselves to this school and hospital via these awards. I feel the families really deserve great recognition for how they have so wonderfully committed themselves to our school and the education of medical students and to our hospital and the compassionate care of patients."

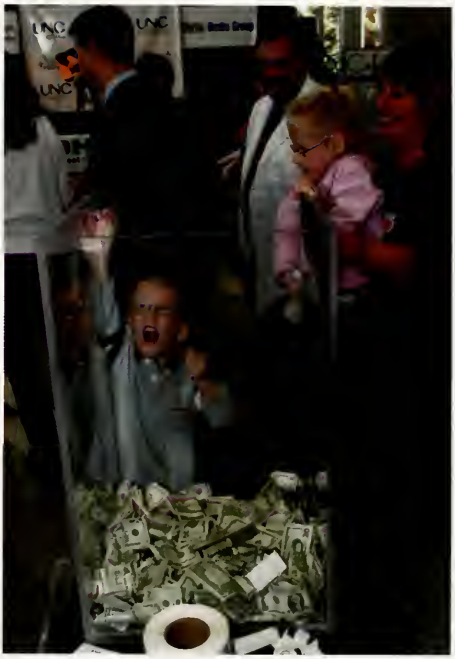
A big day!

Fourth annual N.C. Children's Promise raises nearly $480,000 for pediatric patients

By Tom Hughes

The fourth N.C. Children's Promise Celebration raised nearly $480,000, an increase of some $150,000 over the previous year.

"We are tremendously grateful to the thousands of people all across the state who opened their hearts and their wallets for the benefit of patients in the N.C. Children's Hospital," said Alan Stiles, MD, physician-in-chief at the Children's Hospital and chair of the UNC Department of Pediatrics.



"We also must thank the Curtis Media Group, which once again devoted an enormous amount of time and effort to make this event a success, and Time Warner Cable and News 14 Carolina, which joined us for the first time this year as full media sponsors, and Kohl's Corp., the presenting sponsor for this year's celebration," Dr. Stiles said. "The funds raised during this event are used to help the N. C. Children's Hospital provide cutting-edge care to children from across the state who need care for serious and complex medical and surgical problems. This outpouring of support shows the value the people of our state place on the state's hospital for children."

"There isn't a day all year when we're more proud to be local, community broadcasters than today," said Phil Zachary, executive vice president and COO of Raleigh-based Curtis Media Group. "To see the immediate, generous response by thousands of our listeners to

Country singer Buddy Jewell

the Children's Promise appeal is both gratifying and, at the same time, humbling."

"We were very excited to participate in the N.C. Children's Promise to help increase this year's donations. We also hope the many stories generated by News 14 Carolina in advance of the event created a greater awareness of the many miracles that are performed everyday at the N.C. Children's Hospital," said Tom Adams, division president of Time Warner Cable.

"Kohl's introduced the Kohl's Cares for Kids program to promote children's health and educational opportunities, and is committed to playing an active role in the communities we serve," said Lori Sansoucie, public relations manager for Kohl's Corp. "The dollars raised through this year's N.C. Children's Promise Celebration will make a great impact on North Carolinians, and Kohl's is proud to partner with N.C. Children's Hospital in improving health care for children from all 100 counties in North Carolina."

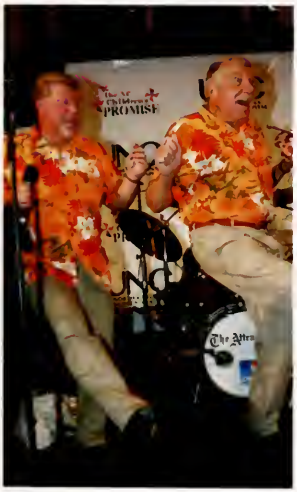
On Nov. 17, Curtis Media radio stations broadcast live from the lobby of the Children's Hospital from 5 a.m. until 11:30 p.m. Also, News 14 Carolina anchors and meteorologists aired two live reports per hour from the Children's Hospital throughout the day as well as ran a special series of stories five days leading up to the celebration. The news series and six live shots also ran on News 14 Carolina in Charlotte.

On-site entertainment this year included appearances by musical performers Buddy Jewell, Blaine Larsen and Tift Merritt. And the Curtis stations auctioned many items autographed by celebrities, with the proceeds to benefit the Children's Hospital.

The first N.C. Children's Promise on Nov. 20, 2002, was the largest fund-raiser ever undertaken by UNC Hospitals up to that time and raised more than $200,000. The 2003 Children's Promise event reached more listeners and was bigger and better than the first, raising approximately $270,000, while the 2004 event raised approximately $330,000.

UNC men's basketball coach Roy Williams, left.

Singer Tift Merritt



UNC lacrosse team

Photos by Brian Strickland

Study: Brain activity related to processing faces is similar in people with, without autism

New brain imaging research at UNC indicates that when people with autism look at a face, activity in the brain area that responds is similar to that of people without autism.

The finding is surprising, as it is widely known that autistic individuals tend to avoid looking directly at faces. The research also counters previous published reports that the face-processing area at the back of the brain is under-responsive in people with autism, and it suggests that specific behavioral interventions may help people with autism improve their ability to interact socially.

The new research was presented in November in Washington, D.C., at the Society for Neuroscience 35th Annual Meeting. The study was conducted by Dr. Aysenil Belger, associate professor of psychiatry in UNC's School of Medicine and of psychology in UNC's College of Arts and Sciences; and Dr. Gabriel Dichter, postdoctoral research fellow within UNC's Neurodevelopmental Disorders Research Center.

BELGER

The study involved functional magnetic resonance imaging, or fMRI. Unlike standard MRI scans that show anatomical structures in black and white, fMRI offers digitally enhanced color images of brain function, depicting localized changes in blood flow and oxygenation.

When particular regions of the brain increase their neural activity in association with various actions or thought processes, they emit enhanced blood oxygen level dependent signals. The signals can be localized in the brain and translated into digital images that portray neural activity level as a ratio of oxygenated to de-oxygenated hemoglobin, the iron-containing pigment in red blood cells. Researchers then can quantify these signals to generate maps of various brain functions.

"The brain regions 'specialized' for face processing, the fusiform gyrus, activated almost identically in our autistic study participants and the control group of individuals without autism. This is one very simple and clear-cut finding," Dr. Belger said.

Previous brain imaging findings of under-responsiveness in the facial area have led some experts to consider this a key cause of the social impairments observed in autism. But Drs. Belger and Dichter said they thought the problem might have more to do with a deficit in "executive function" in portions of the brain's frontal lobes than with a selective deficit in the brain's processing of information from faces.

These portions of the frontal lobes are where "executive" tasks, such as sifting through complex information, selecting task-appropriate responses or inhibiting inappropriate ones, take place. "In other words, these tasks require high levels of cognitive control," Dr. Belger said.

"We wanted to find out if these executive functions of particular brain regions that are critical for the appropriate generation of actions show deficits in autistic individuals. In addition, we wanted to see if these deficits were further compounded by the presence of social cues on which executive decisions had to be based," Dr. Belger added.

The study compared fMRI scans of people with autism and those without the disorder as they performed a one-hour task that required them to attend to certain items in the visual environment while disregarding other items. Specifically, participants wore special goggles through which were displayed pictures of arrows (non-social items) and faces (social items) and were asked to report the direction of the central arrow or central face by pushing a left or right button.

Participants were shown horizontal rows of five arrows or five faces. Sometimes all the arrows and faces were oriented in the same direction. At other times, the central arrow or face was in the opposite direction.

The test with arrows alone had been used previously in studies elsewhere, but the addition of faces was unique to this new study.

"We wanted to know if previous findings of under-responsiveness in the 'face area' of the brain in autism could be simply attentional, or related to an inability to willingly direct attention to the pertinent feature of a face, gaze direction in this instance," Dr. Dichter said, adding that most such studies did not account for where the participants fixed their gaze during brain scanning.

Because individuals with autism typically choose to look away from faces, the previous studies could not disentangle the effects of a preference to look away from faces from actual brain deficits in the ability to process faces. "We required participants to indicate whether faces were looking left or right, thereby requiring that they look at the picture of the face," Dr. Dichter said.

In addition, Drs. Belger and Dichter pointed to research that correlated the amount of time autistic people looked at features of a face with activation of the amygdala, the "anxiety center" of the brain.

They propose that the use of behavioral interventions aimed, perhaps, at de-sensitizing autistic individuals to the anxiety triggered by looking at faces may help to improve the quality of social interactions, at least

from the perspective of caregivers and others involved with them.

"The idea is that maybe behavioral methods can help a child with autism approach facial stimuli without anxiety. This is strictly conjecture, but it is a tantalizing possibility," Dr. Dichter said.

Imaging allows researchers to begin looking at underlying mechanisms in brain function, Dr. Belger said. "Still, we must be careful in our interpretation of the results. Our findings need to be replicated and the research also broadened to include longitudinal studies," he added

Support for the research came from the National Institute of Mental Health Studies to Advance Autism Research and Treatment (STAART) Network and UNC's Neurodevelopmental Disorders Research Center.

—Leslie H. Lang

Study points to molecular origin of neurodegenerative disorders, including Huntington's disease

New research from the UNC School of Medicine points to the possible molecular origin of at least nine human diseases of nervous system degeneration.

The findings appeared recently in *PLoS Computational Biology*, an open-access journal published by the Public Library of Science (PloS) in partnership with the International Society for Computational Biology.

These neurodegenerative diseases, including Huntington's disease, share an abnormal deposit of proteins inside nerve cells. This deposition of protein results from a kind of genetic stutter within the cell's nucleus asking for multiple copies of the amino acid glutamine, a building block of protein structure. These disorders are collectively known as polyglutamine diseases.

Along with Huntington's, these diseases include spinobulbar muscular atrophy; spinocerebellar ataxia types 1, 2, 3, 6, 7 and 17; and dentatorubral-pallidoluysian atrophy, or Haw River Syndrome.

Haw River Syndrome is a genetic brain disorder first identified in 1998 in five generations of a family having ancestors born in Haw River, N.C. The disorder begins in adolescence (between ages 15 and 30 years) and is characterized by progressive and widespread damage to brain function, leading to loss of coordination, seizures, paranoid delusions, dementia and death within 15 to 20 years.

Scientists are uncertain if protein deposition causes nerve cells to deteriorate and die. However, studies show that the greater the number of glutamine repeats in a protein above a certain threshold, the earlier the onset of disease and the more severe the symptoms.

This result suggests that abnormally long glutamine tracts render their host protein toxic to nerve cells.

"Polyglutamine expansion greater than 35 to 40 repeats is definitely a key player in disease etiology and, perhaps, cell death," said Dr. Nikolay V. Dokholyan, assistant professor of biochemistry and biophysics at UNC.

In their new study, Dr. Dokholyan and UNC co-authors sought to determine why a correlation exists between polyglutamine expansion length and nerve cell death, or disease. They hypothesized that expansion of glutamines results in alternative structures forming within the protein that compete with its normal structure and function.

"As a result, the protein cannot function properly and, possibly, aggregates," Dr. Dokholyan said.

DOKHOLYAN

In other words, an abnormally long sequence of glutamines might take on a shape that prevents the host protein from "folding" or coiling into its functional three-dimensional shape. All protein molecules are simple unbranched chains of amino acids; proper folding into an intricate shape enables these molecules to perform their biological function.

Researchers used computer simulations to mimic polyglutamine behavior. The UNC study showed that when the number of glutamine repeats exceeds a critical value, the glutamines tend to take on a specific shape in the protein called a beta helix. Moreover, the tendency to form a beta helix increases as glutamine tract length becomes longer.

"In our simulations, when the length is 25 glutamines, no beta helix forms. At 45, a large majority show beta helix formation," Dr. Dokholyan said. "And it appears that 37 glutamines marks a transition, as only a small number of beta helices are formed."

Dr. Dokholyan said one of his team's goals is to find a way to inhibit the formation of protein aggregates.

"If we understand the mechanism and the structure, it may become possible to develop ways, including new small molecule drugs, that would interfere with the process of aggregation.

"Our philosophy in general has been that many diseases have underlying molecular etiology. And if something goes wrong at the organism level, it also goes wrong at the molecular level. We try to understand the dynamics and the change in structure that occurs in these molecules with the hope of uncovering their toxicity to the cell."

Co-authors with Dr. Dokholyan are graduate student Sagar D. Khare, postdoctoral researcher Dr. Feng Ding and Kenneth N. Gwanmesia, undergraduate student in physics and pre-engineering at Delaware State University.

Funding for the research came from the Muscular Dystrophy Association and the March of Dimes Birth Defects Foundation.

—Leslie H. Lang

Altering time of sentinel lymph node biopsy may improve process for women contemplating mastectomy reconstruction

Altering the standard step-by-step procedure that takes women facing a mastectomy from diagnosis to surgery to reconstruction can improve the process and help in determining if immediate reconstruction is the best course of action, according to new research from UNC.

Key to the new approach is the use of sentinel lymph node biopsy (SLNB) performed as an outpatient procedure a week or so prior to mastectomy, rather then doing the SLNB at the same operation as the mastectomy and reconstruction.

According to the new study published in the October issue of the *American Journal of Surgery*, particular problems may arise with performing SLNB at the same time as the mastectomy with immediate reconstruction.

SLNB involves the removal of some of the first "sentinel" lymph nodes into which cancerous cells from the breast might drain. Studies have shown SLNB to be an effective way to deter the spread of disease to the lymph nodes under the arm.

In current practice using SLNB, the sentinel node is quick-frozen; a pathologist then examines the node under a microscope. This method quickly gives a diagnosis of cancer spread while the surgeon is waiting to complete the procedure. The diagnosis is confirmed a few days after surgery by a more detailed study called a permanent section.

"If the pathologist does not see tumor in the lymph node on frozen section, there is still a chance that tumor may be found in the lymph nodes on final pathology," said lead study author Dr. Nancy Klauber-DeMore, assistant professor of surgery in UNC's School of Medicine and a member of the UNC Lineberger Comprehensive Cancer Center.

KLAUBER-DEMORE

"There can be major consequences for a patient who has undergone immediate breast reconstruction if a metastasis is found on permanent section that was not recognized on frozen section."

There are two issues here, Dr. Klauber-DeMore said. The first is the need for another operation, axillary lymph node dissection, or removal of all the lymph nodes under the armpit. "Axillary lymph node dissection may present increased complications in a patient with a newly reconstructed breast."

The second is that some patients whose lymph nodes prove positive on final pathology may be recommended to undergo post-mastectomy radiation therapy. "And radiation can sometimes have adverse effects on the reconstruction that may lead to poorer cosmetic results, particularly if the reconstruction is with a tissue expander, a breast-shaped prosthetic that helps create a pocket for a breast implant," Klauber-DeMore said.

"That is why it would be optimal to know the final status of the sentinel node before committing the patient to a large operation, such as mastectomy and reconstruction."

In the study, 25 patients underwent outpatient sentinel node biopsy, the procedure taking generally less than an hour. The patients then went home. Two patients had cancer in both breasts; therefore, 27 SLNBs were performed. Patients returned for the final pathology results the following week.

"With the knowledge of the final pathology, the patient can make more informed decisions in discussion with the radiation oncologist and plastic surgeon, to determine whether or not the patient will need radiation after the mastectomy. This in turn will influence whether or not the patient should have immediate reconstruction," Dr. Klauber-DeMore said. "We also know definitively if the patient needs an axillary lymph node dissection at the time of mastectomy."

The study demonstrated that exact knowledge of positive versus negative sentinel lymph node prior to mastectomy helped physicians plan the optimal surgical procedure for the patient, the researchers said.

Of the 27 biopsies, nine patients (33 percent) had tumor-involved lymph nodes. All nine patients underwent an axillary lymph node dissection at the time of their mastectomy. Of these, three did not have immediate reconstruction because it was thought that would be detrimental, Dr. Klauber-DeMore said.

Of the remaining six node-positive patients, five underwent reconstruction with their own tissue instead of a tissue expander. In contrast, six of the 16 (37 percent) node-negative patients underwent reconstruction with a tissue expander.

"We conclude that performing a sentinel node biopsy as a staged procedure prior to definitive mastectomy and reconstruction gives the treating physicians more information to guide the patient regarding the best surgical procedure for them," Dr. Klauber-DeMore said.

Co-authors along with Dr. Klauber-DeMore, and also from UNC's School of Medicine, were Dr. Benjamin Calvo, professor and chief of surgical oncology; Dr. C. Scott Hultman, assistant professor and chief of plastic and reconstructive surgery; Dr. Hong Jin Kim and Dr. Michael O. Meyers, assistant professors of surgical oncology; Dr. Lynn Damitz, assistant professor of plastic and reconstructive surgery; Jill S. Frank, database manager of surgical oncology; Dr. Karen B. Stitzenberg, surgical resident; Dr. Carolyn I. Sartor, associate professor of radiation oncology; and Dr. David W. Ollila, associate professor of surgery.

Study funding came from the American Society of Surgical Oncology/ Breast Cancer Research Foundation and the Sidney Kimmel Foundation.

—Leslie H. Lang

Researchers identify core traits strongly linked to eating disorders

An international team of researchers led by investigators at UNC and the University of Pittsburgh School of Medicine has identified six core traits that appear to be linked to genes associated with two common eating disorders: anorexia and bulimia nervosa.

Approximately 10 million females and 1 million males nationwide are affected by either anorexia or bulimia.

The new findings, which appear in two papers published in the online edition of the *American Journal of Medical Genetics Part B*, bring researchers closer to

identifying specific genes and may also have implications for genetic studies of other complex genetic disorders.

These six core traits are: "obsessionality" (a form of perfectionism); age at menarche (menstruation); anxiety; lifetime minimum body mass index (BMI), a measure of body size based on height and weight; concern over mistakes; and food-related obsessions.

The studies also found that minimum BMI, concern over mistakes, age at menarche and food-related obsessions appeared to be more closely linked to bulimia, whereas obsessionality and anxiety appeared to be more closely linked to anorexia, suggesting that, although closely related, the two conditions have some underlying differences.

The research team culled the six core traits from a list of more than 100 behaviors and personality traits believed to contribute to development of anorexia and/or bulimia. These traits and individual histories involving almost 400 individuals with eating disorders recruited into the study were assessed through structured interviews and standardized tests.

Historically, anorexia and bulimia have been considered closely related disorders or manifestations of the same disorder that is influenced primarily by social and cultural norms, such as society's emphasis on thinness and being attractive.

In recent years, however, research has increasingly pointed to substantial biological and genetic contributions as well.

"The research underscores how critically important genetics are in the origins of eating disorders," said Dr. Cynthia M. Bulik, director of the Eating Disorders Program at UNC's School of Medicine and lead author of the first paper. Dr. Bulik also is the William and Jeanne Jordan distinguished professor of eating disorders in the school's department of psychiatry and professor of nutrition, a program jointly housed in UNC's schools of medicine and public health.

BULIK

Anorexia nervosa is characterized by the relentless pursuit of thinness and obsessive fears of being fat. Self-starvation, extreme weight loss and related medical complications that accompany the disorder can result in death.

In contrast, bulimia nervosa is characterized by recurrent episodes of binge eating followed by self-induced vomiting, fasting, excessive exercise or misuse of laxatives or other substances, to prevent weight gain.

Although people with bulimia usually maintain a normal weight, they, too, often have an obsessive fear of gaining weight, express a constant desire to lose weight and report feeling intensely dissatisfied with their bodies.

Studies of families have shown that individuals with a mother or sister who has suffered from anorexia are 12 times more likely than people without such a family history to develop the disorder and have four times the risk for developing bulimia. Studies also have consistently linked anorexia and bulimia to a cluster of moderately heritable personality and behavioral traits.

However, identifying the genetic variations in the human genome that cause these traits has, until now, been a complicated and cumbersome process, said Dr. Bernie Devlin, associate professor of psychiatry and human genetics at the University of Pittsburgh School of Medicine and a senior author of both studies.

"What we did new in these studies was to combine statistical analysis with expert opinion to come up with a core set of traits that were strongly associated with these two disorders to use in further analyses."

Dr. Walter H. Kaye, professor of psychiatry at the University of Pittsburgh School of Medicine and head of this international group of clinicians, researchers and statisticians attempting to understand the genetic causes of eating disorders, agreed that this approach presents a major step forward. "This is really a pioneering study, and we are very lucky to be able to bring the kinds of statistical and clinical expertise we have to the analysis of our data."

In the second of the two papers, the investigators conducted what is known as linkage analyses on these six traits to determine whether or not they could be used to pinpoint regions of the human genome that increase an individual's risk for developing these two eating disorders.

To their surprise, the analyses produced a pattern of significant linkage signals for bulimia but a less significant and somewhat different pattern of signals for anorexia.

Based on their findings, the investigators concluded that genes on chromosomes 10, 14 and 16 significantly affect risks for developing bulimia, but have a lesser impact on risks for anorexia. They found less significant, but still suggestive signals from other regions of the genome that were more closely linked to anorexia.

Interestingly, when they combined the data from anorexic and bulimic individuals and again conducted the linkage analyses, all of the significant genetic signals for bulimia were slightly or substantially lessened, while some of the suggestive signals for anorexia were amplified.

Although it is possible that combining the data reduced the significant signals for bulimia because they were merely "false positives," the investigators inferred instead that anorexia and bulimia differ at a fundamental biological and genetic level.

The region on chromosome 10 that produced significant linkage with bulimia but not anorexia overlaps substantially with regions of chromosome 10 that previously have been linked with obesity, the researchers found.

This finding is consistent with other studies and observations, Bulik said.

"If you look at families with a high incidence of bulimia, you also find a high incidence of obesity," she added. "However, if you look at families with a high incidence of anorexia, you don't find a high incidence of obesity. So, although these are two genetically related disorders, there clearly appear to be some differences between them."

The investigators cautioned that their findings require further replication in larger samples of individuals with anorexia and bulimia, but they suggested that their methods have much broader applications. In particular, they said, their approach can be applied and/or adapted to linkage studies of other complex conditions, such as diabetes and hypertension.

In addition to Drs. Bulik, Devlin and Kaye, other authors on the two studies include Drs. Silviu-Alin Bacanu, Vibhor A. Sonpar and Weiting Xie, University of Pittsburgh; Kelly L. Klump,

Michigan State University; Manfred M. Fichter, University of Munich (Germany) Hospital for Behavioral Medicine; Katherine A. Halmi, New York Presbyterian Hospital; Pamela Keel, University of Iowa; Allan S. Kaplan and D. Blake Woodside, Toronto General Hospital; James E. Mitchell, Neuropsychiatric Institute, Fargo, N.D.; Alessandro Rotondo, University of Pisa, Italy; Michael Strober, University of California at Los Angeles; Janet Treasure, Institute of Psychiatry and South London and Maudsley National Health Service Trust; Andrew Bergen, National Institutes of Health, National Cancer Institute; and Wade H. Berrettini, University of Pennsylvania Center for Neurobiology and Behavior.

For more information about this ongoing international study and its participants, go to http://www.wpic.pitt.edu/research/angenetics/press.html

These studies were supported by grants from the National Institute of Mental Health, a component of the National Institutes of Health, as well as funds from the Price Foundation of Geneva, Switzerland.

—Leslie H. Lang

UNC study finds protein is required for human chromosome production

UNC School of Medicine scientists have identified an elusive protein that performs a necessary step in the production of human chromosomes.

The new study appeared in the Oct. 7 issue of the journal *Cell*.

The study found that a protein called CPSF73 acts like scissors to cut strands of histone messenger RNA (mRNA) in the cell nucleus. This cutting action produces the mRNA needed to create histone proteins that combine with DNA to form chromosomes.

Like all other proteins, histones are made when a specialized RNA molecule is "read" by ribosomes, the cell's protein factories. The type of RNA, which relays information from the DNA (inside the nucleus) to the ribosome (outside the nucleus), is called messenger RNA.

RNA that is not cut by CPSF73 is destroyed in the nucleus and never becomes messenger RNA, said Dr. William Marzluff, senior author of the study and Kenan distinguished professor of biochemistry and biophysics in UNC's School of Medicine.

"This cutting of histone messenger RNA takes place as growing cells prepare to divide and is absolutely necessary for their eventual division," Dr. Marzluff said.

Histone proteins help organize and compact within the nucleus the 6 billion nucleotides, or DNA bases, that make up the human genome – combinations of "A's," "T's," "G's" and "C's." Without histones, cells cannot survive.

Dr. Zbigniew Dominski, associate professor of biochemistry and biophysics, has been searching for the protein that cuts histone messenger RNA since joining forces with Marzluff 10 years ago. He is the corresponding and lead author of the study.

When RNA is first made from DNA, it is premature and cannot direct the synthesis of its corresponding protein until it is processed into mature messenger RNA, which includes being cut at a specific site, Dr. Dominski said.

"This is a very complex process that requires many proteins to bind to the RNA molecule and show the cutting enzyme where to cleave the RNA," he added.

Dr. Dominski was able to duplicate, in a test tube, the histone mRNA processing that takes place normally inside a cell's nucleus. However, the RNA cutting reaction was so quick that he was unable to determine which of the countless proteins inside the test tube was responsible.

"We set a trap by subtly changing the chemical makeup of the histone messenger RNA right where it is cut. This allows the protein to still come to the RNA but forces it to cut more slowly," Dr. Dominski said.

By slowing down the reaction, Dr. Dominski had enough time to irreversibly attach the RNA cutting protein, or nuclease, to the RNA itself using ultraviolet light as a cross-linking agent. Once attached to the RNA, the long-sought-after nuclease was trapped, allowing its subsequent identification.

The discovery that the RNA cutting protein is CPSF73 was unexpected. This protein was already connected with processing of a completely different class of messenger RNA, polyadenylated mRNAs. These messenger RNAs serve as blueprints for all proteins other than the histones.

MARZLUFF

"In terms of evolution, all messenger RNAs appear to be made with the aid of the same protein, CPSF73," Dr. Marzluff said. "This suggests that the two mRNA processing mechanisms, for polyadenylated and histone mRNAs, are distantly related."

The authors further demonstrated that CPSF73 not only cuts the histone messenger RNA molecule in two, but also then chews the unneeded portion of the histone mRNA molecule into pieces. It is rare to find two such activities within a single protein, Dr. Dominski said.

"From the point of view of understanding biology, our findings provide a unified mechanism for the synthesis of all messenger RNAs," Dr. Marzluff said.

UNC School of Medicine technician and co-author Xiao-cui Yang assisted Drs. Dominski and Marzluff in this study. Their work was supported by a grant from the National Institutes of Health.

—Stuart Shumway

Cellular molecule spurs growth of prostate cancer, may provide target for treatment, study indicates

Scientists at the UNC School of Medicine have identified a molecule that stimulates the aggressive growth of prostate cancer.

The molecule, Ack1, a member of the growth-promoting tyrosine kinase gene family, stimulates tumor formation in part by signaling prostate cells to rid themselves of a tumor-suppressor protein. Normally, this suppressor protein would inhibit rapid cell growth by signaling the cell to destroy itself.

A report on the study, which appeared Nov. 15 in the journal Cancer Research, also points to Ack1 as a potential target for developing novel drugs against prostate cancer.

EARP

The study's senior author, Dr. Shelton Earp, directs the UNC Lineberger Comprehensive Cancer Center and is Lineberger professor of cancer research and a professor of pharmacology and medicine.

Tests of Ack1 demonstrate a profound effect on tumor growth in experimental systems, Dr. Earp said. "It's a remarkable effect. Tumors grew more rapidly and invaded as if they were converted to advanced prostate cancer."

Another major finding of the study involved an experimental drug developed by the National Cancer Institute, called geldanamycin. In laboratory tests, the UNC Lineberger group found Ack1 activity could be inhibited through interference with its molecular interactions, thus offering a target for treatment.

First, the group discovered that Ack1 bound to a protein called Hsp90 (heat shock protein 90), which associated with many oncogenic, or cancer-causing, signaling proteins.

"If you add geldanamycin to the prostate cancer cell, the drug knocks Hsp90 off oncogenic signaling molecules. This dramatically decreases Ack1 activity and slows tumor formation," Dr. Earp said.

In addition, the team compared Ack1 activation in advanced prostate cancer tissue from patients with that found in benign prostatic hypertrophy, or non-cancerous prostate enlargement. The team showed the levels of the activated Ack1 to be much higher in the advanced tumors.

In earlier work, Dr. Earp's UNC laboratory was the first to clone a cell surface tyrosine kinase, Mer.

"We saw that Mer was expressed at reasonably high levels in prostate cancer cells. And so Dr. Nupam Mahajan, the study's first author, decided to look at whether Mer had an effect on prostate cancer growth signaling," Dr. Earp said.

In experiments, which used the university's Michael Hooker Proteomics Core Facility, the team discovered that Mer activated Ack1. This finding led to the current study.

"Because we found Ack1 is more active in advanced prostate tumors, and its inhibition blocks experimental tumor growth, we believe Ack1 should be a target for novel drug development."

Along with Dr. Earp, UNC collaborators include UNC Lineberger members Dr. Nupam P. Mahajan, assistant professor of pharmacology; and Dr. Young E. Whang, assistant professor of medicine. Dr. James L. Mohler, chairman of the department of urologic oncology at Roswell Park Cancer Institute in Buffalo, N.Y., and a UNC Lineberger member, also collaborated on the study.

The research was funded by the National Cancer Institute.

—Leslie H. Lang

School of Medicine snares five of eight NIH Roadmap grants

September was a banner month for the university when faculty from the schools of medicine, pharmacy and public health garnered eight grants from the National Institutes of Health's highly competitive Roadmap program, more grants than any other university in the nation.

The next-most successful institutions in securing such support were Vanderbilt and Columbia universities, both with six, and Memorial Sloan-Kettering Cancer Center with five. Johns Hopkins University had four, Harvard and Stanford universities won three and Duke University won two.

"One of Carolina's great strengths is its commitment to interdisciplinary research focused on real-world problems," said Dr. Tony Waldrop, vice chancellor for research and economic development at UNC. "That commitment and the excellence of our faculty put us in a great position to compete for these awards."

The wide variety of topics represented in the awards exemplifies the breadth and diversity of the university's faculty and programs, Waldrop said.

Of the total grants going to UNC, five were awarded to SOM faculty: Eugene P. Orringer, MD, professor of medicine and executive associate dean for faculty affairs and faculty development; Rudy L. Juliano, PhD, professor of pharmacology and chair of the Carolina Roadmap Executive Committee; Barry M. Popkin, PhD, professor of nutrition in the schools of public health and medicine and director of the UNC Interdisciplinary Obesity Program; David P. Siderovski, PhD, associate professor of pharmacology; and Bruce D. Cuevas, PhD, research assistant professor of pharmacology.

Other UNC recipients were Michael Jarstfer, PhD, assistant professor in the School of Pharmacy; Kuo-Hsiung Lee, PhD, Kenan professor of pharmacy and director of the School of Pharmacy's Natural Products Laboratory; and Alexander Tropsha, PhD, professor in the School of Pharmacy.

The new funding will range from one year to five years and will total roughly $18 million.

Lightning strikes twice for Orringer

For Eugene P. Orringer, MD, professor of medicine and executive associate dean for faculty affairs and faculty development, September was especially nice.

On Sept 20, two days before word reached him of the Roadmap grant, Dr. Orringer received confirmation from NIH that his $2.5 million award for research and training in women's health had been renewed for another five years. The Building Interdisciplinary Research Careers in Women's Health (BIRCWH) award is a K12 NIH grant awarded to a specific institution that is designed to provide salary support (and the necessary protected time) to a group of young scholars who are committed to academic research careers. NIH Office on Research in Women's Health says the BIRCWH program "fosters career development of junior faculty engaged in basic, clinical, translational, behavioral, or health services research in any area relevant to women's health with an emphasis on sex and gender factors."

The program accomplishes this goal by mentoring junior faculty to bridge advanced training with independent research in areas that integrate scientific disciplines.

UNC initially received the award in the fall of 2000, one of the first 12 such grants funded nationally. This award brought a total of five years of support at $500,000 a year, almost all of which are to be used to support the salary of junior faculty. UNC is one of six original grantees to win renewal in 2005.

"These funds assure each BIRCWH Scholar of 75 percent time that is carefully protected for research," Dr. Orringer pointed out. "In addition to assisting each BIRCWH Scholar to achieve research independence within a two-year period, our goal is to keep all former Scholars involved in the program (as BIRCWH Associates), thereby assuring us of a critical mass of junior faculty with interest in, and a commitment to research in the area of women's health."

Most of the new grants are part of the agency's "Roadmap for Medical Research," a series of initiatives designed to transform the nation's medical research capabilities and speed the movement of research discoveries from the bench to the bedside. The program provides a framework for NIH funding priorities and represents an attempt to make the country's medical research system more efficient and productive.

"It's worth noting how different the successful Carolina applications are, the wide variety in interests represented by our new projects," said Dr. Juliano, who will lead the newly established Carolina Center of Nanotechnology Excellence. That center will marry the university's expertise in nanotechnology with patient-oriented research taking place at the UNC Lineberger Comprehensive Cancer Center.

"Dr. Orringer continues with and diversifies his longstanding program in multidisciplinary clinical training, one of the bedrocks of the School of Medicine. Dr. Lee of the School of Pharmacy will create chemical diversity libraries of compounds derived from medicinal plants. Dr. Popkin and I both will be training postdoctoral fellows. His program, which will benefit scores of future scientists, clinicians and others in interdisciplinary obesity efforts, and mine will complement each other in taking on the challenges of clinical medicine. Drs. Siderovski, Jarstfer, Cuevas and Tropsha will build on Carolina's strength in basic science investigation with their new programs to develop better biomedical assays and to boost understanding of complex molecular interactions."

Dr. Orringer is principal investigator and program director of the $14 million Mulitidisciplinary Clinical Research Career Development Program (MCRCDP), designed to train clinical research scholars. It was awarded this year to only five institutions in the country. The grant will help recruit a cohort of fellows and junior faculty members drawn from at least four disciplines and then prepare them for careers in multidisciplinary clinical research.

According to Dr. Orringer, the curriculum includes a didactic component (formal courses, seminars, small group activities, workshops) that will "provide clinical research scholars with an understanding of and appreciation for diverse clinical research disciplines, methodological and analytic concepts necessary to design rigorous clinical research and underlying principles and concepts of bioethics related to the responsible conduct of research."

The curriculum also has a practicum experience that includes a mentored research internship (Year 1); a mentored research project (Year 2); and an independent research project (Years 3-5) that leads to future research funding. As envisioned, this MCRCDP will embrace the full spectrum of clinical research.

"Although we submitted this grant from the School of Medicine, it really came from the entire health affairs campus. Each of the five deans from each of the five health affairs schools was 100 percent behind this initiative," Dr. Orringer said. "I can't think of a more important grant we're received here in the last five years – particularly because it involves the entire health campus, and also because it was so incredibly competitive to achieve."

–Leslie H. Lang

Dr. David R. Rubinow named chair of Psychiatry

David Rubinow, MD, has been selected as the next chairman of the UNC Department of Psychiatry.

Dr. Rubinow, who currently is chief of the Behavioral Endocrinology Branch and clinical director of the National Institute of Mental Health, assumed his new position at UNC Jan. 1. In addition to the chair's position, he also will hold the title of Assad Meymandi distinguished professor.

"Dr. Rubinow is an internationally renowned academician," said Robert Golden, MD, vice dean of the UNC School of Medicine and the current chair of Psychiatry. "He is a creative scientist, nurturing teacher, astute and caring psychiatrist, and a truly outstanding person. I can't think of anyone better suited to lead this department forward."

Dr. Rubinow graduated from the University of Michigan, received his MD from the University of Connecticut and completed an internship and residency at Yale University. In 1979, he began a clinical research fellowship in the Biological Psychiatry Branch at NIMH, in which he later served as unit chief and section chief, until his appointment in 1996 as chief of the Behavioral Endocrinology Branch.

From 1982-1989, he served as director of the NIH Psychiatry Consultation-Liaison Service, and from 1987 to present has served as the clinical director of the NIMH Intramural Research Program.

Dr. Rubinow has received the A.E. Bennett Neuropsychiatric Research Foundation Award, the Research Award of the Academy of Psychosomatic Medicine, the Gold Medal Award of the Society of Biological Psychiatry, and the NIH Distinguished Clinical Educator Award.

His research interests focus on the neurobehavioral effects of gonadal steroids, with both laboratory and clinical studies directed to identifying those factors that account for the differential response across individuals to what is ostensibly the same stimulus.

Brushes with Life wins 2005 Lilly Reintegration Award

A gallery featuring artwork by UNC psychiatry patients has been recognized for its efforts in helping people with mental illness.

Brushes with Life: Art, Artists, & Mental Illness is a patient art gallery located outside the Psychotic Disorders inpatient unit at the N.C. Neurosciences Hospital. It is part of the Schizophrenic Treatment and Evaluation Program (STEP) in the UNC Department of Psychiatry, which provides inpatient and outpatient care of patients dealing with psychotic symptoms or illnesses such as Schizophrenia and Schizoaffective disorders.

The gallery features artwork from former STEP inpatients, current clinic outpatients, and clients from Club Nova, a local clubhouse for the mentally ill.

The Lilly Reintegration Awards honor individuals or groups who help and support people living with severe mental illness; the achievements of people living with severe mental illness who offer hope to others facing similar challenges; and local and national efforts to raise awareness for mental illness.

"Lilly is very pleased to acknowledge the extraordinary efforts of all of the award recipients and their contributions in the area of recovery for people with severe mental illness," said Dr. John Lechleiter, executive vice president of Pharmaceutical Operations, Eli Lilly & Co. "Lilly is committed to the recovery of people with mental illness, and we want to recognize the noble efforts of this year's award winners who have helped many people with mental illness to reach their full potential and live happier and healthier lives."

The Reintegration Awards program underscores the powerful and collaborative roles of consumer involvement, treatment team support and access to effective medication in helping people move their lives forward.

The Brushes with Life Art Gallery won first prize in the Advocacy area for its dedication to speaking up for people living with schizophrenia and bipolar disorder. The award included a $5,000 gift.

School welcomes special D.C. guests

On Veterans' Day, the UNC School of Medicine co-hosted the university's first annual visit to the campus by staff members of the N.C. congressional delegation in Washington, D.C. Their busy schedule highlighted the school's interacting clinical, training and research missions and included a lunchtime discussion with leaders of student organizations that perform community services. *Left to right*, listening to second-year student Mike Hromadka are Mark Harkins, chief of staff to Rep. Brad Miller; second-year student Hallam Gugelmann; and Cheryl McCartney, MD, executive associate dean for Medical Education.

Board members reunion

Past and present members of the UNC Health Care Board of Directors gathered recently for lunch. The group included deans of The School of Medicine, below. From left: Jeff Houpt, Michael Simmons, Stuart Bondurant and current dean Bill Roper.

development

UNC names first recipients of newly endowed scholarships by classes of '55, '70

Two UNC medical students are benefiting this year from endowed scholarships donated by the classes of 1955 and 1970.

Greg Larsen (MS I) and Avik Chatterjee (MS II) are the first recipients of the Class of 1955 and Class of 1970 endowed scholarships.

To endow a scholarship, each class had to raise at least $100,000 in gifts and pledges. The class of '55 was able to raise more than $170,000 in their efforts and hopes to have another endowed scholarship soon.

John W. Foust, MD, chair of the class of '55, said the class decided at its 50th reunion to do something really special to give back to the school. Dr. Foust said the endowed scholarship is not only a way to give back to the School of Medicine, but also to help relieve the strained loyalty fund.

"We have been funding 52 scholarships out of the loyalty fund annual giving program," he said. "Tuition is now increasing at the medical school and if we can get endowed scholarships over a period of time, it'll guarantee that we can continue giving scholarships from the loyalty fund for years to come."

Larsen, recipient of the Class of '55 scholarship, attended Tennessee Tech University and graduated with a degree in history in 1999. After working for 5 years, Larsen decided to apply to medical school. Though he is paying out-of-state tuition, Larsen said the impact of the scholarship has been huge and really put a dent in the amount of debt he'll have after graduation.

"Part of the reason I came to UNC was because the School of Medicine was so comparably affordable," he said. "This scholarship, coupled with another one I got allows me to pay only $30,000 a year instead of $50,000. I still have to take out a lot of loans, but in the long run, that's a huge difference."

Chatterjee, the recipient of the Class of '70 scholarship, added that while the scholarship is tremendously helpful now, he'd see its greatest impact after graduation.

"It really creates a lot of opportunities for me once I'm done with medical school," he said. "It will make it easier for me to do a career that involves community service because I don't have to worry about having a huge loan burden."

Chatterjee, who grew up in Cary and studied biochemical sciences at Harvard University, taught high school chemistry in Newark, NJ, as part of Teach for America after graduation.

Drs. James Sloan, Dan Crocker and Ed Norfleet co-chaired the Class of '70 reunion committee. Dr. Norfleet said the class felt a debt of gratitude to the School of Medicine and decided that endowing the scholarship would be a wonderful way to recognize the school.

"We sat down with the Medical Foundation and basically tried to come up with something we could do special this year," he said. "We're very proud of our class and we thought we had a very special class and by getting the group of us together, it was fairly easy to raise the money. We felt we owed the medical school for all the excellence in education we received."

Excellence Fund launches its Corporate Campaign

On Oct. 12, the Excellence Fund, the annual fund for friends, corporations, and foundations, kicked off its Corporate Campaign, chaired by Page Allen, senior vice-president and director of Carolinas Government and Institutional Banking.

Allen is excited about this leadership opportunity to boost support of medicine at UNC.

"The work done at UNC Hospitals not only touches all of North Carolina but also reaches the rest of our country and the world," Allen said. "UNC Hospitals contributes to the quality of life throughout North Carolina."

Allen immediately went to work recruiting Paul Billow, Womble, Carlyle, Sandridge, and Rice; Gary Hill, Grubb & Ellis – Thomas Linderman Graham; Doug Holmes, MD, ENT & Audiology Associates, PLLC; Chuck Lotz, First Citizens Bank; Anne McGeorge, Deloitte Tax; John Richardson, Corporate Express; Dan Taylor, Wachovia; and Jay Young, SunTrust Bank.

Midway through the campaign, the Corporate Committee is more than halfway to its goal of $40,000. Gifts and pledges have been received from a number of area corporations and foundations including Wachovia, First Citizens Bank, Manpower and the Dover Foundation. As of Dec. 1, gifts and pledges exceeded $35,000.

"Corporations understand how important it is to have institutions such as UNC Hospitals – and it is important to me to help communicate the mission of the hospitals and the fact that with more corporate support, more can be done," Allen said.

The funds raised from the Corporate Committee will go toward student and patient programs at UNC. Funds support student research awards, seed grants for UNC scientists, a distinguished teaching professorship, scholarships for deserving students and special patient programs.

Dr. and Mrs. Eugene Bozymski

Dr. and Mrs. William Heizer

Professorship campaign focused on gastroenterology is initiated

To honor the contributions of Drs. Eugene Bozymski and William Heizer to the field of gastroenterology and UNC, the Mary Kay & Eugene Bozymski and Linda & William Heizer Distinguished Professorship campaign has been initiated.

The goal is to create an endowed professorship with a principal of $500,000.

To do this, $333,000 will be raised in private gifts. Once this is achieved, the university will apply for matching funds of $167,000 from the State of North Carolina.

"Gene Bozymski and Bill Heizer have trained a generation of gastroenterologists and served as role models for many clinicians and teachers," said Robert Sandler, MD, chief of the Division of Gastroenterology and Hepatology. "The professorship will be a perpetual tribute to them."

Kent Farris, MD '72, is co-chairing this campaign with committee members Bob Buccini, MD '87, Hank Lesesne, MD '73, Mark Murphy, MD '94, Robert Sandler, MD, Vic Sears, MD '96, and Nick Shaheen, MD '97.

For more information or to contribute, please contact Mary Ollila at The Medical Foundation of North Carolina, Inc., at (800) 962-2543 or (919) 966-1201.

Dent elected national vice chair of GSA

Georgette A. Dent, MD, associate dean for student affairs and associate professor of pathology and laboratory medicine in the UNC School of Medicine, has been elected national vice-chair for 2005-2006 of the Group on Student Affairs of the Association of American Medical Colleges.

DENT

Dr. Dent assumed these duties at the GSA business meeting at the AAMC's annual meeting on Nov. 6, 2005.

The GSA national vice-chair serves a four-year term on the GSA Steering Committee under the assumption of automatic progression through the offices of GSA national vice-chair (one year), GSA national chair-elect (one year), GSA national chair (one year) and immediate past GSA national chair (one year).

Watkins named 'highly cited researcher'

Paul Watkins, MD, was one of the 250 most cited authors in the field of pharmacology from1984 to 2004, according to ISIhighlycited.com. Dr. Watkins is a professor in the Division of Gastroenterology and Hepatology in the Department of Medicine and director of the General Clinical Research Center at UNC Hospitals.

Cohen receives Thomas Parran Award from AVDA

Myron S. Cohen, MD, has received the 2005 Thomas Parran Award from the American Venereal Disease Association. The award recognizes lifetime achievements in sexually transmitted disease research. It is the society's highest honor.

COHEN

Dr. Cohen is the J. Herbert Bate distinguished professor of medicine and microbiology and immunology in UNC's School of Medicine and of epidemiology in UNC's School of Public Health. He is also director of UNC's Division of Infectious Diseases and Center for Infectious Diseases.

McCoy elected to CAMTS board

Marshall McCoy, MD, an associate professor in the Department of Emergency Medicine, has been elected to the board of directors of the Commission on Accreditation of Medical Transport Services (CAMTS). The commission sets quality standards for patient care and safety in the medical transport environment.

MCCOY

Dr. McCoy is also a member of the board of directors of the Air Medical Physicians Association, and has been medical director of UNC Air Care for the past 10 years.

Earp begins term as President of AACI

H. Shelton Earp III, MD, recently began a two-year term as president of the Association of American Cancer Institutes (AACI). The AACI is an association of the nation's 85 leading academic and freestanding cancer centers.

Dr. Earp is the director of the UNC Lineberger Comprehensive Cancer Center. He is also Lineberger professor of cancer research and a professor of pharmacology and medicine.

Connolly receives 2005 H. Fleming Fuller Award

AnnaMarie Connolly, MD, a UNC assistant professor in the Department of Obstetrics and Gynecology recently received this year's H. Fleming Fuller Award.

The award recognizes doctors who demonstrate compassionate patient care and excellence in teaching and community service.

Lowdermilk receives award of excellence for educating colleagues

Deitra Lowdermilk, a professor at UNC's School of Nursing, recently received the Association of Women's Health, Obstetric and Neonatal Nurses' Award of Excellence in Education. The association presents its Award of Excellence in Education to a member with an outstanding history of educating colleagues and others.

special EVENTS

Fall Alumni Weekend
School of Medicine alumni gathered in Chapel Hill in October for the annual banquet.

Photos by Brian Strickland

60s

Dave M. Davis, MD '63, is medical director of the Piedmont Psychiatric Clinic in Atlanta, Ga. Dr. Davis reports that he "practices golf in Cashiers, N.C. and psychiatry in Atlanta."

70s

Richard M. Freeman, MD '70, has been elected to the State of Alabama Board of Medical Examiners. Dr. Freeman is a pediatrician in Auburn, Ala.

80s

Robert Bjork Jr., MD '81, is a pediatrician and founding chair of the Scripps Cancer Center Institutional Review Board in San Diego County, Calif. Dr. Bjork also chairs the Clinical Research Committee for the Children's Primary Care Medical Group and is a member of the Scientific Advisory Committee. He and his wife, Elise, have been married for 24 years and have four children: Robby, 10; Carlton, 8; Claire, 6; and Tori, 3.

Alan R. Saltiel, PhD '80, has been elected to The Institute of Medicine of the National Academy of Sciences. Dr. Saltiel is director of the Life Sciences Institute at the University of Michigan, where he is also the John Jacob Abel Collegiate Professor in Life Sciences and professor of internal medicine and physiology.

90s

Samuel W. Jones, MD '95, returned to UNC in July 2006 after serving as a general surgeon in the U.S. Navy. He is participating in a burn fellowship until July 2007, when he begins a plastic surgery residency at UNC.

Caroline Corthren Prochnau, MD '98, gave birth to her first child, Meghan Elizabeth Prochnau, on Oct. 14, 2005. Dr. Prochnau continues to work as an internal medicine physician in Asheboro, N.C.

00s

Rodney Look, MD '01 and Adair Look, MD '01 finished their residencies at Massachusetts General Hospital and are now living with their son, Jansen, in San Francisco. Adair works as a psychiatrist specializing in eating disorders and Rod is working as an emergency physician in Napa and Sonoma.

Deaths

Joseph Woodrow Baggett, CMED '43, died Aug. 20, 2005, at his home in Fayetteville, N.C. Earlier in 2005, Dr. Baggett established the Joseph and Hannah Baggett Distinguished Professorship in Neurology in the UNC School of Medicine to promote the study and treatment of Parkinson's disease. That professorship is currently held by Dr. Richard Murrow.

Truett Vann Bennett, CMED '43, died Aug. 19, 2005. Dr. Bennett practiced as an ear, nose and throat surgeon in Atlanta, Ga., from 1953-1962, and in Honolulu and Kona, Hawaii from 1962-1990. He then retrained in family medicine and established a general medical practice in Oriental, N.C., where he worked from 1990-1998. His final residence was in Oriental.

Richard Armistead Boyd, MD '56, died Sept. 18, 2005, in Statesville, N.C. Dr. Boyd served the UNC School of Medicine as a member of the board of directors of the Medical Foundation, president of the Alumni Association, and he was founding member and first chairman of the Medical Alumni Endowment Fund board. In 1993 he received the Distinguished Service Award from the UNC School of Medicine. He retired from the practice of obstetrics and gynecology in 1998.

Matt C. Harper Jr., CMED '51, died Jan. 20, 2005, at the age of 80. Dr. Harper, who served in the U.S. Air Force during World War II, had a medical career in general practice that spanned 28 years at Caswell Center and 16 years at Cherry Hospital. Dr. Harper lived in Kinston, N.C.

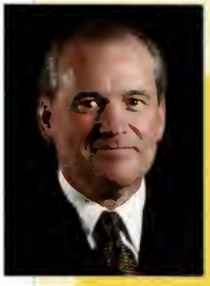
Lawrence H. Hooper Jr., MD '79, died Feb. 18, 2005. Dr. Hooper's specialty was pediatrics, and he lived in Oviedo, Fla.

Clyde Franklin Lloyd, MD '56, died Oct. 26, 2005, at the age of 81. Dr. Lloyd's specialty was radiology. He was born in Chapel Hill and lived in Roanoke, Va. for the last 38 years. He was a pilot in the Army Air Corps in World War II and a radiologist at Lewis-Gale Medical Center in Salem, Va., for 25 years, until his retirement in 1992.

Elizabeth Craver (Adams) Pryor, MD '88, died Aug. 29, 2005 at her home in Johnson City, Tenn., after a long battle with pancreatic cancer. She was 43. Dr. Pryor's specialty was obstetrics and gynecology.

Claiborne T. Smith Jr., CMED '50, died April 6, 2005. His specialty was psychiatry, and he lived in Haverford, Penn.

Jack W. Wilkerson, CMED '51, died Nov. 13, 2005. Dr. Wilkerson spent the largest part of his career in general practice in Greenville, N.C., from 1967 until his retirement in 1994. He was also instrumental in the founding of the School of Medicine at East Carolina University, where he served as the first chairman of the Department of Family Medicine. He remained a clinical professor of family medicine at ECU even after he retired from active practice.



from the president

Dear Alumni and Friends:

As 2005 comes to a successful close for the School of Medicine and the Medical Alumni Association, planning is well underway for a busy agenda for 2006. We hope to keep you informed so that you may participate in as many activities as possible, and so that you are aware of all the many opportunities for support of our school. I am pleased to report that total applications to the School of Medicine have increased by more than 700 in comparison to the previous year, confirming the attractiveness of our institution and its goals for the future, as outlined by the Dean Roper's vision to make our school the premier public medical school in this country. After recent discussions with two students who hope to pursue medicine, I am also gratified by the caliber and dedication of those who aspire to a medical career and who hope to attend our school.

During the winter months, many of your classmates will be engaged in planning and implementation of Class Reunion campaigns for the class years ending in ones and sixes. Please heed their encouragement by pledging generous contributions toward our alumni goals, and most importantly, by attending the Spring Medical Alumni Weekend, where you can rekindle old friendships, view the changes to the campus and become involved in school activities. I am most pleased that my own Class of 1981 has elected to proceed with a special endowed scholarship campaign, which will provide support for a medical student throughout their career. Those in the classes of 1955 and 1970 have previously committed themselves to this generous type of support. Local Loyalty Fund campaigns are also underway with more than 200 alumni scheduled to call to elicit support for those of you in Buncombe, Durham, Forsyth, Guilford, Mecklenburg, New Hanover and Orange counties, as well as in the Atlanta area.

Please mark your calendar for this year's Spring Medical Alumni Weekend, to be held April 21-22. You will receive more information soon, but this promises to be a very special occasion. We are most excited about the dedication of Bondurant Hall, scheduled for April 21. After extensive renovations, the former Medical Sciences Research Building will be renamed and dedicated in honor of Stuart Bondurant, MD, dean of the School of Medicine from 1979-1994. This magnificent addition to our campus will house offices of the dean, among others, and will once again provide a recognizable face for the School of Medicine along Columbia Street. Additional events on April 21 include the Spicer-Breckenridge Lecture, to be given this year by William Winkenwerder, MD, Assistant Secretary of Defense for Health Affairs (and an esteemed member of my own Class of 1981). Later that evening, an alumni dinner is planned at which time Distinguished Service Awards will be presented to deserving alumni. April 22 will be reserved for individually planned reunion activities, again for those in classes ending in ones and sixes.

Your generous support through the Medical Alumni Association will allow us to award more than 50 Loyalty Fund scholarships to MD, MD/PhD, and Allied Health Science students this year. As you are aware, the increasing costs of a medical education necessitate that the majority of our students receive some type of support. It is our hope that increased alumni giving this fiscal year will allow us to provide additional one-time scholarships beyond those outlined above. As well as scholarship support, your Alumni Association also funds student activities such as a hurricane relief service trip, students' attendance at national meetings, and orientation programs. All of these activities serve to foster a connection between graduated Alumni and those who are to be the future of our profession. Just as importantly, such support generates a culture among our students that realizes the importance of their future support of the School of Medicine. This self-perpetuating process is vital if we are to realize the goals of our school for the future.

Sincerely,

William M Herndon MD

William M. Herndon, Jr., MD, '81, FACC

CME/Events Calendar

Feb. 16 – Greensboro
Dean's Reception for Guilford County

March 2 – Raleigh
Dean's Reception for Wake County

March 7 – Winston-Salem
Dean's Reception for Forsyth County

April 1 – Chapel Hill
Kidney Kare Run

April 1-2 – Chapel Hill
Updates in Ophthalmic Oncology

April 4-7 – Chapel Hill
30th Annual Internal Medicine Conference

April 8 – Chapel Hill
Beach Ball benefiting UNC Lineberger Comprehensive Cancer Center

April 8-9 – Chapel Hill
Therapeutic Advances in Lupus

April 21-22 – Chapel Hill
Spring Alumni Weekend

April 21-23 – Chapel Hill
Update in Gastroenterology and Hepatology

May 4-7 – Chapel Hill
3rd Symposium on Hemostasis with Special Focus on Factor VIIa and Tissue Factor

June 26-27 – Chapel Hill
Pancreatic Cancer

June 10 – Chapel Hill
Medicolegal Seminar 2006

June 14-18 – Amelia Island, Fla.
Carolina Refresher Lectures

July 20-23 – Amelia Island, Fla.
Heart Failure Management

For more information, go to **www.med.unc.edu/alumni and www.med.unc.edu/cme.**

Estate Planning Notice

Many individuals would like to make a major gift to the UNC medical center, but cannot commit current assets for such a purpose. Through a will, however, anyone can make a more significant gift than they might ever have thought possible by designating a specific sum, a percentage, or the residue of their estate for the benefit of the medical center.

To provide a bequest, simply include a paragraph in your will naming The Medical Foundation of North Carolina, Inc. as a beneficiary. For example:

"I give, devise and bequeath (the sum of $_____) or (_____ % of my estate) or (the residue of my estate) to The Medical Foundation of North Carolina, Inc., a 501(C)(3) created to maintain funds for the UNC medical center with principal offices located at 880 Martin Luther King, Jr. Blvd., Chapel Hill, North Carolina."

This language creates an unrestricted bequest for use by the medical center when and where the need is greatest, or you may specify that your gift be used for a particular purpose.

For further information on bequests, contact Jane McNeer at (919) 966-1201, (800) 962-2543, or Jane_McNeer@unc.edu.

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THE EDUCATION ISSUE

UNC Medical Bulletin

Fall 2006

A publication for alumni and friends
of the University of North Carolina at Chapel Hill School of Medicine and UNC Health Care

Now, *that's* an entrance!

How the glorious **Bondurant Hall** serves as the School of Medicine's official 'door' and much-needed new home to **Allied Health Sciences**

from the dean

Dear Friends and Alumni:

Several of you have heard me declare this school's vision to be the nation's leading public school of medicine and academic health care system. We value outstanding research programs that will enable high-quality patient care with the most recent medical advances. And, we strive to be innovators in research, development, and the implementation of new ways to improve the health of North Carolinians and share that knowledge with a national audience.

Our ambitious vision is rooted in a solid foundation of science, medicine and leadership that has always characterized the UNC School of Medicine. Now, with the opening of Bondurant Hall, that foundation supports a facility that will help carry us toward that vision. Fittingly named after one of my esteemed predecessors, Stuart Bondurant, this hall is the new "town square" of our institution.

Until recently, Bondurant Hall was called the Medical Sciences Research Building, known generally as the MSRB. Comprised mostly of laboratories, it was the first facility built primarily for research at the School of Medicine. Approved in 1959 and completed in 1962, the MSRB contained 55,000 square feet of space, costing $1.3 million to build.

In 2001, when our planning office began discussing the future of the MSRB, we soon realized that the building's individual labs were too small and lacked specialized support spaces, and the hallways on the lower levels contained mold. From the time the design work began for Bondurant Hall, it became clear that the total area above the ceiling was inadequate for the ventilation and utilities required for modern laboratories. Dean Jeffrey Houpt, my immediate predecessor, decided to abandon the structure for laboratory use and to convert it to office space instead.

Bondurant Hall, now expanded to 106,000 square feet, has become the new front door to UNC's medical and allied health education programs. The School of Medicine, the Department of Allied Health Services and its eight divisions, the Dean's office, the alumni affairs office, and the office of student affairs for medical education, are all located there, under one roof.

We are especially pleased that the Department of Allied Health, once housed in a basement, now has a brand new home. Finally, this department has the working environment that reflects its importance in medical education and the field of health care. The department, ranked among the top 20 in the nation for four of its graduate programs, offers academic programs ranging from entry level, professional certificates through advanced professional doctorates and research PhDs. Many of the nation's leaders in the fields of Allied Health are trained at UNC. These leading programs will only be enhanced with the state-of-art labs and facilities that will assist in providing the practical training necessary for teaching excellent patient care.

Four years ago, Dean Houpt discussed the possibility of creating a formal entrance to the School of Medicine. Thanks to the support of the Higher Education Bond Program, entrusted to us by the people of our state, the University was able to transform an antiquated building into the "town square" of our medical and allied health education programs. Bondurant Hall is a fitting representation of the vision we pursue and the mission we fulfill in training those who care for the people of North Carolina

Sincerely,

Bill Roper

William L. Roper, MD MPH
Dean, UNC School of Medicine
Vice Chancellor for Medical Affairs
CEO, UNC Health Care System
The University of North Carolina at Chapel Hill

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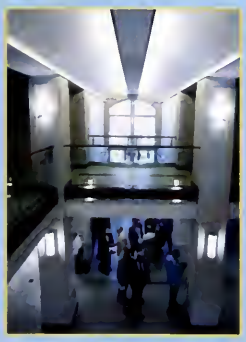

The School of Medicine has a new "front door" in the dazzling Bondurant Hall, named for former Dean Stuart Bondurant. And it's also the new home of Allied Health Sciences. *(Cover photo by Brian Strickland)*

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SPECIAL EDUCATION SECTION

The Gateway

Allied Health takes its place as the School of Medicine's new 'front door'

Stories by Angela Spivey

UNC's Department of Allied Health Sciences had it all: 18 accredited degree and certificate programs, 400 students, and a ranking among the top 20 in the nation for four of its graduate programs.

What it didn't have: classroom and laboratory space without spiders and exposed steam pipes. That changed in late 2006 when the department moved from the basement-level former dormitories known as Wing E to its newly renovated home in Bondurant Hall.

"My predecessor, David Yoder, used to say, 'Great buildings don't make great programs; great people do,'" said Lee K. McLean, PhD, associate dean and chair of the Department of Allied Health Sciences. "That's how we survived all those years down in the wings. Because we knew we had great programs and we were in a great medical school."

Photos by Brian Strickland

Dean Roper spoke at the dedication of Bondurant Hall.

The department offers academic programs ranging from entry level, professional certificates through advanced professional doctorates and research PhDs, in seven divisions: Clinical Laboratory Science, Cytotechnology, Occupational Science, Physical Therapy, Radiologic Science, Rehabilitation Counseling and Psychology, and Speech and Hearing Sciences.

Many of the state and nation's leaders in these fields are trained at UNC. "We expect our graduates will quickly rise to have leadership positions. Our role is to train that sort of top tier of practitioner," Dr. McLean said. North Carolina is the only state with a state Council for Allied Health, and the executive director is appointed through UNC's Department of Allied Health and has an office there.

Now the department's physical image matches the quality of its programs. "This facility represents a statement by the university and by the medical school and more than anything by the taxpayers of North Carolina, because this was a bond-issue building, that Allied Health is a valued and important part of the university and of the medical school here," Dr. McLean said.

Bondurant Hall, named for former School of Medicine Dean Stuart Bondurant, was previously known as the Medical Sciences Research Building, or MSRB, and was the first facility built primarily for research at the School of Medicine. With its recent renovations, it has almost tripled in size, to 106,000 square feet, and now includes 19 lecture halls and seminar rooms as well as 29 teaching and research laboratories.

In addition to the Department of Allied Health's seven divisions, the building houses the School of Medicine, the dean's office, the Alumni Affairs office, and the Office of Student Affairs for Medical Education.

Bondurant Hall is the first building many prospective students and new enrolling students will see, and School of Medicine Dean William L. Roper, MD, MPH, has called it the entrance way for the "town square" of UNC's medical and allied health education facilities.

Many of the labs in Bondurant Hall were specially designed to help Allied Health faculty train the front-line health professionals who are in increasing demand and to help integrate teaching with research, Dr. McLean said.

continued on page 6

The Bondurant family at the building dedication.

Building's namesake rich in UNC history

Bondurant Hall is named for Stuart Bondurant, MD, who served as dean of the UNC School of Medicine from 1979-94. He also served as interim dean from 1996-97.

A native of Winston-Salem, N.C., he attended UNC-Chapel Hill as an undergraduate and earned his BS and MD degrees at Duke University. He served an internship, residency, and research fellowship at Duke University Hospital. He enlisted in the United States Air Force in 1956, then completed his medical residency at Peter Bent Brigham Hospital in Boston.

Dr. Bondurant's achievements as a physician, scholar, and administrator have been recognized internationally, and he has served with distinction in the highest leadership positions of some of the nation's most distinguished scientific and professional organizations. These include the Indiana University School of Medicine, where he served as associate director of the school's Cardiovascular Research Center; the National Heart Institute, where he established the first national program of research on myocardial infarction; and the Albany Medical College in New York, where he served as president and dean.

Under Dr. Bondurant's leadership, the UNC School of Medicine greatly increased the scope of its activities and reinforced its commitment to excellence. Five new departments were added during his 15-year tenure: Biomedical Engineering, Emergency Medicine, Nutrition, Physical Medicine and Rehabilitation, and Radiation Oncology.

Many new centers, institutes, and specialized programs were created and nurtured, from the Ambulatory Care Center and Cystic Fibrosis/Pulmonary Research and Treatment Center to the Program on Molecular Biology and Biotechnology and Gene Therapy Center.

Dr. Bondurant believed that unlike many other medical schools, which are separate from their parent institutions in geography and in mind, UNC's medical school must remain an integral part of the university. He was an enthusiastic advocate for the College of Arts and Sciences' Foundation for Excellence campaign. In addition, several of the new units established during his tenure, including the Department of Nutrition and the Center for Environmental Lung Biology, resulted from innovative partnerships forged with other schools at the University and with off-campus agencies. The Department of Nutrition, for example, is the first in the country to be shared between a medical school and a school of public health.

Dr. Bondurant appointed a faculty curriculum review committee and established a Student Research and Academic Enrichment Program. A substantial number of medical students now carry out research with a faculty mentor, with some of their research leading to publication.

He has received numerous honors and awards, including the American College of Physicians' Alfred E. Stengel Award, a citation for distinguished service to research from the American Heart Association, and the Meritorious Civilian Service Medal from the U.S. Air Force. Among his greatest honors is that he has been responsible for awarding more than 3,000 MD degrees from three medical schools, with approximately 2,500 of them from UNC.

Dr. Bondurant continues to serve the medical profession in a variety of ways, including his current appointment as interim executive vice president and executive dean of Georgetown University Medical Center.

Graduate gives back

Evangeline Clark says she made up her mind that she wanted to be a medical technologist when she was in the tenth grade. "I had a really wonderful tenth grade science teacher who was a medical technologist," she said. "One day she brought in auger plates for us to all cough on, and then she incubated them and brought them back and showed us what had happened. And I was fascinated."

CLARK

A native of Monroe, N.C., she also knew she wanted to go to UNC. The year she applied was the first year the school decided to admit freshman women on campus. "They only let a number in for medical technology, pharmacy, and physical therapy," Clark said.

"It's a good thing I got in, because it was the only school I applied to."

The Clinical Laboratory Science Division of the Department of Allied Health Sciences had its origins in the medical technology degree program that Clark pursued. "We took essentially pre-med for three years, and then we went into the hospital for the year's rotation," Clark said. The students learned at the bench from technicians in labs such as chemistry and microbiology.

The degree program wasn't the only thing different then. Weeknight curfew for the women was 8 p.m. Weekends, it was 11. "They really were scared to death what was going to happen when they turned these freshman women loose on campus," Clark said with a laugh.

Her UNC degree gave Clark confidence no matter where she was employed. After graduating in 1962, she worked for three years in the microbiology laboratory at N.C. Memorial Hospital. Then she and her husband moved to California. "My first interview for a job was with a doctors' group. And of course they didn't even ask me what I knew; they just saw that I graduated from Carolina, and they hired me."

In 2006, Clark and her husband, Robert Burns Clark, who received his B.A. and law degrees from UNC, gave the first endowed scholarship given by an alumnus to the Division of Clinical Laboratory Science, The Evangeline Hinson Clark Allied Health Science Loyalty Fund Scholarship.

"We really grew up in Chapel Hill," Clark said. "We had a little bit to give, and we wanted to give it back, so other people can experience what we did."

Occupational therapy students can now learn in a laboratory designed like an apartment, but with half walls so teachers can observe and coach students. Students can use the setting to practice helping clients set up their kitchens or home offices, for example, to accommodate disabilities. The apartment also demonstrates universal design, which uses features such as level entrances and wider doorways that can accommodate people of a wide range of ages and abilities.

The division of rehabilitation counseling's labs simulate a counselor space and allow faculty to observe students at work.

Speech pathology and audiology students now have access to six labs that share three sound booths designed to reduce incoming sounds for testing and research that require low noise levels, said Jackson Roush, Ph.D., professor and director of the Division of Speech and Hearing Sciences. One of the booths is used as a teaching lab for students in the audiology program. The other two booths are used for research into the development of auditory behaviors in infants and young children and into the speech characteristics of people with aphasia (the loss of the ability to speak or understand language, usually caused by brain disease or injury).

The physical therapy division gained more convenient space for its motion-analysis lab, in which cameras and data-analysis tools allow researchers to measure the mechanics of human movement and the muscular activity associated with it. "The best feature is that it is adjacent to our teaching areas so that we can start integrating

research and education," said Rick Segal, PT, PhD, Professor and Director of the Division of Physical Therapy.

Just as important as the well-designed laboratories and the marble entryway is the symbolic gesture of bringing the department into the "front door" of the medical school, Dr. McLean said. "It's a morale booster," she said. "Being here gives us presence and visibility, and the chances for that casual networking and interacting with our colleagues that we were always missing."

Allied Health's new home is welcoming to new faculty, including Michael Lewek, PT, PhD, who will join the division of physical therapy in January 2007. Lewek studies recovery of walking in patients who have suffered strokes, so the proximity to medical school colleagues and hospital patients helped attract him. "The new facility was important in showing that we had a commitment to doing patient-oriented scholarly research," Dr. Segal said.

At a time when job growth is stagnating in many sectors, the health care field is growing, and the department of Allied Health Sciences prepares front-line health professionals to help fill that need. "As each field of medical practice is getting more specialized, with new technologies and newer treatment modalities, they're generating in turn niche areas where they need new allied health professionals," Dr. McLean said.

For example, in January 2006, the department became one of the first in the country to offer training for a new profession: radiologist assistant. "The position will fill a specific niche of bridging between an RT, who has anywhere from two to four years of experience, and a radiologist, who is an MD," said Joy Renner, MA, RT (R), clinical associate professor and director of the Radiologic Science Division.

As dean, Dr. Bondurant awarded about 2,500 MD degrees at UNC.

Dr. Bondurant, right, greets UNC Hospitals President Gary Park at the dedication.

"There's a nationwide radiologist shortage, and many practices just can't find enough people."

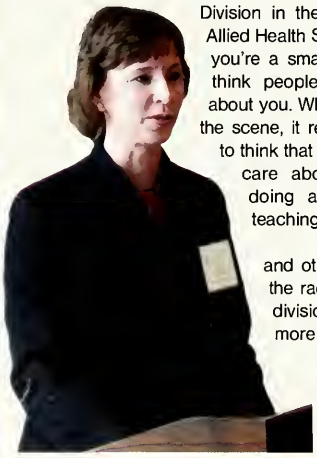
A radiologist assistant can, for example, perform PT assessments, perform radiologic procedures, and make initial observations of diagnostic images. UNC's post baccalaureate radiologist assistant program, designed for people who are already RTs, is offered through distance education and web-based instruction, with two on-campus seminars per semester and a clinical preceptorship directed by radiologist practice.

"Our challenge is to continue to grow to meet the state's needs and physicians' needs for workers at all of these levels, and to maximize our opportunities to collaborate with the other faculty in the medical school and the medical departments," Dr. McLean said. "The new facility obviously gives us much better space in which to do that."

It started with one donor

The Department of Allied Health Sciences' new radiologic science training facility and lab contains more than $500,000 worth of equipment donated by large corporations such as Siemens, FUJIFILM, and Philips. But it all started with the generosity of Francis D. Pepper, Jr. MD, a 1956 graduate of the UNC School of Medicine, who established an endowment fund for student scholarships and program development in honor of his late wife, Phyllis Ann Canup Pepper, one of the first graduates of UNC's radiologic technologist program.

"Francis Pepper is the impetus for all this," said Joy Renner, M.A., RT (R), clinical associate professor and director of the Radiologic Science Division in the Department of Allied Health Sciences. "When you're a small program, you think people wouldn't care about you. When he came on the scene, it really spurred us to think that people really do care about what we're doing and what we're teaching."



RENNER

Soon Renner and other members of the radiologic science division were forging more partnerships.

Barry Burns, MS, RT (R) DABR, research professor in radiologic science, had spent untold hours testing the bugs of early computed radiography technology systems. His activities led to FUJIFILM corporation's $189,000 donation of computed radiography equipment. "He provided the CR community with a lot of really good feedback on their early products, that helped with development," Renner said. FUJIFILM named its gift in honor of Burns.

Renner and other faculty built a relationship with the Siemens corporation, which operates a training headquarters in nearby Cary. "We started giving them a clinical edge to their training, for their salespeople and engineers," Renner said. When Renner found out the program was definitely going to get new space in Burnett Womack, she approached Siemens, and they donated $300,000 worth of equipment, including the new radiographic and a new fluoroscopic room.

Jim Barba, MA, RT (R), clinical assistant professor in Radiologic Science, secured the donation of a $90,000 digital PACS (Picture Archiving and Communication System) from Philips Corporation. The system enables students to view lab images from home or any computer with a web connection. The old training facility in Wing E consisted of one 1972 radiographic room where students had to wait to view images on view boxes.

"We hope this new accessibility will support students who need a little bit more academic support and need to hear or see something more than once, and help them to be more successful," Renner said. "Because our program is a very rigorous academic program; it moves fast. So the more support we can give them for learning, the better."

Creating a CAROLINA LEGACY

Photo by Steve Exum

Fitch (left) and Wilcox

✦ *Professorship Honors Friendship* ✦

R.B. Fitch honors longtime friend Ben Wilcox with endowed professorship in cardiothoracic surgery

For the first 30 years of their friendship, Ben Wilcox always whipped R.B. Fitch on the tennis court. But 10 years ago they switched to golf, and now Fitch is making a comeback.

Fitch '55 joked that he's using all the money he's won on the golf course to fund a gift to the Carolina First Campaign. In reality, he used appreciated stock to fund a charitable remainder trust that will ultimately endow the Benson R. Wilcox Distinguished Professorship in Cardiothoracic Surgery, in honor of his friend. Wilcox '53 '57 (MD), an expert in congenital heart disease, pediatric cardiac morphology and pediatric chest disease, has worked at the UNC School of Medicine since 1963. From 1969 to 1998, he served as chief of the Division of Cardiothoracic Surgery.

When he was considering making a gift, Fitch said, he wanted to give to UNC Hospitals, honor Ben and convert some appreciated stock into retirement income. So he created a charitable remainder trust, which pays him income for life. In addition, he received a sizable income tax charitable deduction. At Fitch's death, the proceeds of the trust will be used to fund the professorship. He called the gift a win-win-win proposition. "It was just the thing to do," he said.

Fitch, who is developing Fearrington Village south of Chapel Hill, said he has always been impressed by his friend, whom he met in the early 1960s when their families lived across the street from each other. "I like to be associated with people on top of their game," Fitch said. "And he was always on top of his game in cardiothoracic surgery." Wilcox, who operated on more than 2,000 children during his career, has retired from the operating room but remains a professor in the Department of Surgery.

A lifelong Chapel Hill resident, Fitch said he feels like he's grown up with UNC Hospitals. Fitch's father, R.B. Sr., and wife, Jenny '60, were treated there. Wilcox operated on Fitch's father most of one night, and Jenny fought a long battle with breast cancer before her death in 1995. "Anything having to do with illness or the hospital, Ben was my go-to guy," Fitch said. "Every time I turned, there was Ben."

If you're interested in a "win-win-win" proposition that could increase your income, save taxes and benefit Carolina, please contact Jane McNeer, vice president of The Medical Foundation of North Carolina, Inc at (919) 966-1201 or JMcNeer@email.unc.edu.

CAROLINA FIRST

carolinafirst.unc.edu/giftplanning

A 'devoted, faithful son of Carolina'

New Medical Alumni Association president has deep roots in North Carolina

By Tom Hughes

The new president of UNC's Medical Alumni Association is about as deeply rooted in the area where he was born and raised, where he still lives and practices radiology, as it is possible for a person to be.

Theodore C. "Ted" Kerner Jr., MD '85, grew up in Kernersville, N.C., in a house that his great-grandfather built. His mother continued to live in that house until her death earlier this year. And the similarity between Dr. Kerner's last name and the name of the town is no mere coincidence. Dr. Kerner is a sixth-generation descendant of Joseph Kerner, who founded the town in 1777.

These days, Dr. Kerner's home is in Winston-Salem, just down the road from Kernersville, which now is considered a bedroom community of both Winston-Salem and Greensboro. He has spent his entire life living in that area, except for the years he spent pursuing his undergraduate and medical education at UNC, followed by a residency and fellowship in radiology at Vanderbilt University Medical Center in Tennessee.

After completing his fellowship in neuroradiology in 1990, Dr. Kerner joined the staff of Forsyth Radiological Associates in Winston-Salem, near Forsyth Medical Center. His practice has been based there ever since. It's an arrangement that also allows him to see patients in Kernersville, at an imaging center that his group practice operates there.

Dr. Kerner attended UNC-Chapel Hill as an undergraduate, on a Morehead scholarship. He graduated in 1981 with a B.S. in chemistry and with what he called an "indoctrination" – a deep love of the university and a strong desire to use what he had learned there for the benefit of his native state.

"I am a very devoted, faithful son of Carolina," he said in a recent interview. "I feel very fortunate to have been admitted to UNC."

He began medical school at UNC in 1981 and completed his M.D. in 1985. By that time he had married the former Lisa J. Motsinger, whom he met while both were UNC undergraduates, and their first son, Ted III, had been born at N.C. Memorial Hospital. When the time came for the delivery, Dr. Kerner recalls, he and his wife walked to the hospital from their apartment in nearby Odom Village.

"It was easier to walk than to deal with the parking," he recalled with a laugh.

> "I am a very devoted, faithful son of Carolina. I feel very fortunate to have been admitted to UNC."
>
> **Theodore C. "Ted" Kerner Jr., MD '85**

When asked what was his most memorable experience in medical school, Dr. Kerner told a story about Dr. James Scatliff, who then was chair of the Department of Radiology, using hand puppets during a lecture to the second-year class. Dr. Scatliff's out-of-the-box pedagogical approach made a big impression on him, as did the other radiology faculty, Dr. Kerner said.

"I liked them, and they really seemed to enjoy what they were doing," he said. "That had more influence than probably anything else on why I decided to go into radiology."

Dr. Kerner has served as a co-chairman of the Medical Alumni Endowment Campaign and he currently is a member of the board of visitors for the Health Sciences Library. He first became actively involved in the Medical Alumni Association at the invitation of former president Dr. Thomas Koontz, he said. He is also a lifetime member of the UNC General Alumni Association.

A former Eagle Scout, Dr. Kerner has also been active in the Boy Scouts of America as an adult, serving as an assistant scout master and helping guide his two sons as they worked to achieve the level of Eagle Scout themselves. His older son, Ted III, made it to Eagle Scout a few years ago (and is currently a junior at UNC-Chapel Hill). His younger son, David, has completed all but one of the Eagle Scout requirements and will soon complete the final part, Dr. Kerner said.

Dr. Kerner is active in the Wilderness Medical Society and is a member of the Augsburg Lutheran Church in Winston-Salem. He was also a founding member of Körner's Folly, Inc., an organization dedicated to preserving an unusual home built in 1880 by one of Dr. Kerner's ancestors, Jule Gilmer Körner, who became famous as a painter of Bull Durham bulls across the South.

Dr. Kerner's ancestors immigrated to the United States from Germany. Some members of Dr. Kerner's family spell their last name as he does, with an 'e'. Others prefer to spell it with an 'o' and an umlaut. "And there aren't too many of either of us left," Dr. Kerner said.

The house, known as Körner's Folly, is the best known landmark in the town of Kernersville and has been featured in a show aired on UNC-TV. According to the Körner's Folly Foundation Web site, "The eccentric structure offers 22 rooms spread out over three floors and seven levels, with ceiling heights ranging from six feet to 25 feet. It was a work-in-

progress from the beginning: when Jule married Polly Alice Masten in 1886, portions were enclosed and the stables moved across the street; a top-level room was significantly converted in 1897; Körner died in 1924, feeling that the 'work' was still incomplete."

It is not the house that Dr. Kerner grew up in; he grew up in a separate house down the street. But his involvement in the Folly's historical preservation effort is one of the many roots in Dr. Kerner's life that keep him connected, as an adult, to the place where he grew up.

Theodore C. "Ted" Kerner, Jr., MD '85

Hometown: Kernersville, N.C.

Undergraduate education: UNC-Chapel Hill, B.S., 1981

Medical education: UNC School of Medicine, M.D., 1985, followed by residency and fellowship at Vanderbilt University Medical Center, 1985-1990. At Vanderbilt, he was chief resident in radiology in 1988-1989.

Current position: Neuroradiologist, Forsyth Radiological Associates, 1990 to the present.

Family: Married to the former Lisa J. Motsinger, who graduated from the UNC School of Pharmacy in 1983. They have two sons, Ted III, 21, who is currently a junior at UNC-Chapel Hill; and David, 17.

Personal interests: Historic preservation, Wilderness Medical Society, Boy Scouts of America, and an occasional bagpipe lesson.

Taking a **hands-on approach**

Photos by Brian Strickland

New Psychiatry chair plans growth in areas of clinical and research excellence

By Tom Hughes

The new chair of UNC's Department of Psychiatry, David R. Rubinow, MD, is regarded as a major and influential figure in the field of biological psychiatry.

He came to UNC after a distinguished 26-year career at the National Institute of Mental Health in Bethesda, Md. There he started as a staff psychiatrist in 1979 and advanced through a series of positions of increasing responsibility, culminating in his appointment as Clinical Director of NIMH in 1987 and as the founding chief of the NIMH's Behavioral Endocrinology Branch in 1996. He held both positions until 2005, when he accepted his current appointment at UNC.

Along the way, he received numerous awards for his research, his clinical supervision and training, and his scientific administration. To name just a few examples: In 2005, he received the Mood Disorders Research Award, given by the American College of Psychiatrists. In 2002, he received the NIMH's Mentor of the Year Award, and in 2001, the Gold Medal Award for Research of the Society of Biological Psychiatry. In 1992, he received the U.S. Public Health Service's Outstanding Service Medal and the National Institutes of Health's Distinguished Teacher of the Year Award.

He has also authored or co-authored more than 300 scientific publications. According to Charles B. Nemeroff, MD, PhD, a UNC School of Medicine alumnus and chair of the Department of Psychiatry and Behavorial Sciences at Emory University, Dr. Rubinow's excellence "is characterized not only by the quantity of his research publications but by their remarkable quality."

Dr. Nemeroff pointed to Dr. Rubinow's recent studies on the biological basis of premenstrual syndrome and its treatment, as well as the psychiatric consequences of ovarian failure in young women, as examples that prove his point. In addition, Dr. Nemeroff said, " he is one of the clearest thinkers and best teachers I have ever seen."

Dr. Rubinow is in high demand as an expert commentator on the research of others in his field. Just three months after he started

his new job at UNC, *The New England Journal of Medicine* published an editorial he wrote commenting on two studies about strategies for treating patients whose depression had returned after treatment with selective serotonin-reuptake inhibitors. Not long after that, he was quoted in *USA Today* in an article about a new book on women's mood disorders written by one of his colleagues.

But there's another side to Dr. Rubinow as well. For almost 40 years, he has played guitar and sung in a combination 50's rock and roll/blues band. Although the band's members all live in different places, they get together to play music at least annually when they serve as the "house band" for the Society of Biological Psychiatry. When asked what other hobbies he has, Dr. Rubinow replied, without hesitation, "I like to play golf and drink beer."

Indeed, one gets the impression when talking to him that Dr. Rubinow is someone who would be fun to go get a beer with. That quality of his has apparently made a positive impression on those with whom he has worked.

"He is widely beloved by his colleagues, his trainees and his patients," said Dr. Nemeroff. "This is not a statement that can be made about very many individuals in academic medicine."

Within biological psychiatry, Dr. Rubinow's particular area of expertise is women's mental health and reproductive medicine. Accordingly, one of his first actions as chair at UNC was to establish a new Women's Mood Disorders Clinic, which specializes in treating women with problems such as postpartum and perimenopausal depression.

"If you look at reproductive mood disorders, they're ubiquitous and cause a tremendous amount of suffering," Dr. Rubinow said in a recent interview.

"Postpartum depression occurs in 10 percent of women and, according to the Confidential Enquiries into Maternal Death report in the United Kingdom, it is the leading cause of maternal death in England, more than hemorrhage, more than sepsis. Perimenopausal depression occurs in probably 15 to 20 percent of women. It increases the risk of dying from heart disease by 50 percent after controlling for all other health-related variables. So these are significant problems," he said.

One of his goals, Dr. Rubinow said, is to see UNC "become a very vigorous site of research activity and clinical excellence" in women's mood disorders. In addition, he plans to grow additional areas of research and clinical excellence in bipolar and affective disorders.

One of his goals, Dr. Rubinow said, is to see UNC "become a very vigorous site of research activity and clinical excellence" in women's mood disorders. In addition, he plans to grow additional areas of research and clinical excellence in bipolar and affective disorders.

"What I'd really like is to see our department making major contributions to the evaluation, treatment and understanding of affective disorders, both those specifically related to women and those impacting all adults and children," he said.

In addition to his administrative duties as department chair, Dr. Rubinow also continues to treat patients and even takes turns as the attending on-call physician for his department.

"I think it's important for me to get a sense of everything that's going on in the department and to know firsthand the experiences of the people who are working here, whether it's doing research and writing grants or seeing patients in the clinic or working with the residents in the emergency room," he said. "You can't delegate what you don't understand."

David R. Rubinow, MD

Hometown: Manchester, Conn.

Undergraduate education: University of Michigan, B.A. in philosophy and history, with distinction (1970).

Medical education: University of Connecticut, M.D. (1975); Yale University, internship and residency in psychiatry (1975-1979).

Current positions: Chair, UNC Department of Psychiatry, Meymandi Distinguished Professor of Psychiatry and Professor of Medicine.

Previous positions: Dr. Rubinow worked at the National Institute of Mental Health in Bethesda, Md., from 1979 to 2005. He started there as a staff psychiatrist and advanced to several positions of increasing responsibility, including Clinical Director of NIMH, a position he held for 18 years, and founding chief of the NIMH's Behavorial Endocrinology Branch.

Family: Dr. Rubinow's wife, Carly M. Rubinow, is an attorney who specializes in child advocacy law. They have three adult daughters: Tasha, 32; Katya, 30; and Dara, 26.

Hobbies/Personal Interests: Dr. Rubinow has played guitar and sang in a blues/1950s-style rock and roll band, now called the "Bad Business Blues Band," for many years. The band members all live in different places and play annually at the Society for Biological Psychiatry meetings. He also professes a fondness for physical fitness, golf and beer.

A positive forecast

Francis Collins expresses enthusiasm about **new strategies** to find **genetic causes of common diseases**

Courtesy Carolina Alumni Review/Dan Sears

Dr. Collins, left, met many university faculty and officials during his whirlwind trip to Chapel Hill.

By Angela Spivey

Speaking to a crowd that overflowed the seats of the main auditorium of UNC's Medical Biomolecular Research Building, UNC School of Medicine alumnus Francis Collins, MD '77, PhD, director of the National Human Genome Research Institute, predicted that scientists will find the genetic causes for common diseases such as diabetes and prostate cancer in as little as two years.

Dr. Collins led the Human Genome Project, which announced the successful mapping and sequencing of all of human DNA in 2003. But it has been only recently that tools have been developed to make use of that information to impact huma disease, Dr. Collins said.

"I'm willing to make a prediction that major genetic ris factors for the common diseases are going to turn up in the ne two to three years, because we finally have tools powerful enoug to be able to search for them in a systematic way," he said.

"We are all 99.9 percent the same at the DNA level," D Collins said. "That point-one percent difference may be the bes hope for finding out when we are risk for disease." Single nucleotide polymorphisms (SNPs) – one-letter "spelling changes

in DNA's sequence of As, Ts, Cs, and Gs — make up most of human genetic variation and are thought to influence individuals' disease susceptibility.

Dr. Collins' enthusiasm stems from the success of recent efforts such as the International HapMap project, which attempts to identify most of the estimated 10 million SNPs that occur in the human population, then group them according to where they appear on the chromosome. SNPs that appear adjacent to one another are often inherited together. Such a collection of SNPs that often occur in the same "neighborhood "is known as a haplotype.

With knowledge of haplotypes, scientists looking for variants that increase disease risk can test for only a few SNPs, which can stand in as proxies for the rest of the SNPs in the "neighborhood." That means that a scientist looking for SNPs that occur in people with certain diseases would have to test only 300,000 to 600,000 proxy SNPs, rather that all 10 million.

Until the development of HapMap and other tools, scientists' efforts to figure out how small genetic variations influence disease have been like the old story about a man who loses his keys on a dark street, Dr. Collins said. As the story goes, a friend comes along and asks the man why he's only looking in one spot when his keys could be anywhere along the street. The man replies, "I've been looking where the light is."

Because of the lack of tools to examine the whole genome, scientists' search for genetic links to disease has been similarly limited, Dr. Collins said. "Frankly, our level of ignorance about most common diseases is enormous," he said.

But the HapMap project is now beginning to yield clues that are getting scientists closer to "seeing the whole street" in the search for genetic variants that lead to disease, Dr. Collins said.

For example, using HapMap tools, scientists have identified three of the common genetic variants that increase the risk for age-related macular degeneration, the most common cause of blindness in the elderly. Those three variants together account for 74 percent of risk for the disease. And because these variants are known to be related to inflammation, the findings give scientists reason to consider inflammation as a factor in macular degeneration.

"This finding is revolutionary, in terms of looking at the whole street," Dr. Collins said. "No one had these variants on their short list for macular degeneration." Other variants have been identified that increase risk for type II diabetes and prostate cancer.

Dr. Collins made these remarks when delivering one of the plenary lectures at "Finding the Genome," a symposium held at UNC on Sept. 15 as part of a two-day Community Genetics Forum. Dr. Collins also participated in panel discussions with other experts moderated by Jim Evans, MD, PhD, associate professor of genetics at UNC School of Medicine.

In addition, Dr. Collins delivered a lunchtime talk about "The Future of Genomic Science" to graduate students and postdoctoral fellows, as well as an afternoon talk on a similar topic for undergraduate students from UNC and surrounding universities. He concluded his visit by participating on Sept. 16 in a community colloquium held at the North Carolina School for Science and Math in Durham.

The events were sponsored by UNC-Chapel Hill, the Carolina Center for Genome Sciences, the UNC Department of Genetics, UNC's Parr Center for Ethics, the National Human Genome Research Institute, the National Institute of Health, the Department of Health and Human Services, Duke University's Institute for Genome Sciences and Policy, Duke's Center for the Study of Medical Ethics and Humanities, The North Carolina School for Science and Math and the Durham County Library.

Preeclampsia, fetal development problems may be linked to low levels of hormone

New research from UNC ties low levels of a hormone secreted by the uterus and embryos to problems with pregnancy and fetal development.

The findings also suggest that the hormone, adrenomedullin, plays a key role in maternal susceptibility to preeclampsia, a serious pregnancy complication that occurs in the third trimester. Preeclampsia affects roughly one in 15 pregnant women and is the leading cause of death among expectant mothers.

The UNC researchers demonstrated that pregnant mice with low adrenomedullin levels had reduced litter sizes, and while embryos implanted normally in the uterus, their spacing was overcrowded and resulted in poor growth. Because the low hormone levels were caused by a genetic mutation affecting adrenomedullin production, similar genetic changes could be linked to problems in human pregnancy, the researchers said.

"Our study provides the first genetic evidence to suggest that a modest reduction in human adrenomedullin expression during pregnancy may cause profound defects during pregnancy," said Dr. Kathleen M. Caron, senior study author and an assistant professor in the departments of cell and molecular physiology and genetics at the UNC School of Medicine.

Among the potential problems are poor implantation of the embryo, failure of the placenta to establish blood flow between mother and fetus and restricted fetal growth, Dr. Caron said. "The clinical implications are that women who have mutations in the gene responsible for expressing adrenomedullin might have greater susceptibility to these pregnancy problems, including preeclampsia."

The study was published online Sept. 14 in the *Journal of Clinical Investigation* and appeared in the Oct. 2 print edition.

Discovered in 1993, adrenomedullin is a powerful blood vessel dilator that is essential for life. Secreted by cells throughout the body, it is involved in more than a dozen physiological functions such as metabolism, heart rate control, gastric control, thirst and appetite control, stress response, blood vessel growth, antibacterial activity and nerve transmission.

The hormone also plays a role in a number of diseases and cardiovascular conditions. For example, blood levels of adrenomedullin double in cancer, kidney failure, congestive heart failure, hypertension and diabetes. According to Dr. Caron, one of the greatest increases occurs during the course of a normal pregnancy, when the placenta secretes adrenomedullin – levels reach four to five times higher than normal by the third trimester before rapidly returning to pre-pregnancy values after delivery.

But in women who experience complications such as preeclampsia, spontaneous abortion, and gestational diabetes, hormone levels do not increase as they normally would in pregnancy. "It's possible that the inability to increase adrenomedullin during pregnancy might be a cause of preeclampsia and other problems," Dr. Caron said.

CARON

Dr. Caron, who has studied adrenomedullin's role in the body for several years, first noticed the link between the hormone and fertility while working as a postdoctoral researcher with UNC professor Dr. Oliver Smithies. Dr. Caron discovered that mice with a genetic mutation causing a 50 percent reduction in adrenomedullin levels had poor fertility and small litter sizes.

Dr. Caron's latest research establishes that reduced litter sizes are due to low adrenomedullin levels in the mother and not the father. The study also found that although embryos implanted normally, their spacing in the wall of the mouse uterus was "overcrowded," which was associated with poorer subsequent growth. This overcrowding also was linked to abnormal placentas and a high rate of twinning.

The UNC researchers showed that both mother and embryo make an effort to increase the level of adrenomedullin at the embryo's implantation site in the uterus. "And when mom's level is 50 percent lower than normal, implantation goes awry, as does fetal growth," Dr. Caron said.

Study co-authors include Dr. Terry R. Magnuson, Sarah Graham Kenan professor, chair of genetics and director of the Carolina Center for Genome Sciences; Dr. Manyu Li, first author and postdoctoral scientist and veterinarian in Caron's lab; and Della Yee, research technician.

Funding was provided by the Burroughs Wellcome Fund and the National Institutes of Health.

Study: Breast cancer in younger black women more likely to be an aggressive variety

For decades, researchers have tried to understand why breast cancer in younger black women is such a significant public health problem.

Black women have fewer breast cancers than white women, but their mortality is worse. Black women under the age of 50 have a 77 percent higher mortality rate from breast cancer than white women of the same age.

Results of a study led by scientists from the UNC schools of Public Health and Medicine and the UNC Lineberger Comprehensive Cancer suggest one reason for these differences.

When younger, premenopausal, black women get breast cancer, they are more than twice as likely as older women, black or white, to get an aggressive breast cancer subtype, the study found. They are also much less likely to get the least aggressive type. A report of the research appeared in the June 7 issue of the *Journal of the American Medical Association* (JAMA).

"The present study adds an important piece to a large puzzle," said senior study author Dr. Robert Millikan. "Previous studies showed that many breast tumors in younger African American women are very fast-growing and hard to treat.

"We found something new: younger African American breast cancer patients show a high frequency of one of the aggressive subtypes of breast cancer called basal-like," said Dr. Millikan, associate professor of epidemiology at the UNC School of Public Health, a UNC Lineberger member and principal investigator of the Carolina Breast Cancer Study (CBCS).

The CBCS, one of the largest black breast cancer databases in the United States, is a population-based case-control study that enrolled women with breast cancer from 24 counties of North Carolina as cases, and an equal number of women without breast cancer as controls. Women who consented to the study were interviewed about their histories, and their tumor tissue was collected. The study required extensive cooperation from all of the women who participated in the study, their physicians and pathologists, and a large number of hospitals in North Carolina.

According to JAMA study lead author Dr. Lisa A. Carey, associate professor of medicine in the hematology-oncology division at UNC's School of Medicine, modern technologies such as microarray analysis can reveal the molecular characteristics of cancers and have shown that breast cancer is not one disease. "It is a family of diseases that are biologically different from each other, some more aggressive than others," Carey said. "In this study, using the Carolina Breast Cancer Study, we were looking at how frequently these different subtypes occur in a given population."

DNA microarray analysis allows scientists to determine the expression levels of thousands of genes simultaneously. This can reveal gene expression patterns, which, in turn, enable genomic profiling of tumor cells.

UNC School of Medicine study co-author Dr. Charles M. Perou, assistant professor of genetics, pathology & laboratory medicine, and a Lineberger member, is a pioneer in microarray technology. "Gene expression analysis using DNA microarrays has identified several breast cancer subtypes, including luminal A, luminal B, basal-like and HER2-plus/estrogen receptor-negative," said Dr. Perou. "These studies were based on limited sample sets. We wanted to see if we could identify the presence of these subtypes through a population-based study and to find out if they correlate with factors such as age, menopausal status and race."

Studies find general mechanism of cellular aging; Suggest tumor suppressor gene is key

Three separate studies confirm a gene that suppresses tumor cell growth also plays a key role in aging.

The researchers found increasing concentration, or expression, of the gene p16INK4a in older cells; these aging cells worked poorly compared to young cells and remembered their "age" even when transferred from old mice to young mice. The cells of mice bred without the gene showed less sluggishness as the animals aged and continued to function in a manner more similar to cells from younger mice.

Teams from the medical schools at UNC, University of Michigan and Harvard University observed similar results in pancreatic islet cells and brain and blood stem cells.

SHARPLESS

The results show disparate cell types share a common aging mechanism and suggest that aging-related diseases such as diabetes result from a failure of cell growth, said Dr. Norman E. Sharpless, co-author on the three studies and an assistant professor of medicine and genetics at the UNC School of Medicine. "The studies indicate that certain stem cells lose their ability to divide and replace themselves with age as the expression of p16INK4a increases," said Dr. Sharpless, a member of the UNC Lineberger Comprehensive Cancer Center.

The trio of reports were published online Sept. 6 in the journal Nature. The three research teams are from the medical schools at UNC, the University of Michigan and Harvard University.

The UNC study focused on p16INK4a effects on the function of pancreatic islet cells. Islet cells are responsible for insulin production and secretion. Because p16INK4a stops cancer cells from dividing and demonstrates increased expression with age, the scientists suspected the gene played a similar role in aging. The researchers developed strains of mice that were either deficient in p16INK4a (the gene was deleted, or 'knocked out") or genetically altered to have an excess of the protein to a degree seen in aging.

According to Dr. Sharpless, islet proliferation persisted in p16INK4a -deficient animals as they aged, "almost as if they were younger animals." In mice with an excess of p16INK4a, "islet cells aged prematurely; they stopped dividing early."

"This suggests that if we could attenuate p16INK4a expression in some way in humans, it could lead to enhanced islet re-growth in adults and a possible new treatment for diabetes," Sharpless said.

Similar results were found in the other studies, which focused on brain stem cells and blood stem cells.

The Michigan researchers, led by Dr. Sean Morrison, examined the role played by p16INK4a in neural stem cells, progenitor cells that can form new neurons and other brain cells. The team showed that p16INK4a increases markedly in those cells with aging. Moreover, p16INK4a -deficient neural stem cells work better and don't age to the same extent that wild-type (normal) stem cells do, Sharpless said.

Dr. Janakiraman Krishnamurthy, lead author of the UNC study and a postdoctoral scientist in the Sharpless lab, was a co-author of the Michigan report.

The Harvard team, led by Dr. David Scadden, studied the role of p16INK4a in hematopoietic stem cells, which proliferate continuously during the adult lifespan and produce massive amounts of new blood cells on an hourly basis. Their results suggest that p16INK4a is the molecular basis for an old-age "signal" previously observed in blood stem cells. The Harvard

study also showed that blood stem cells from old mice lacking p16INK4a functioned better than old cells from wild-type mice, suggesting p16INK4a causes aging of these cells as well.

Dr. Sharpless cautions that any promise of a potential new aging treatment based on p16INK4a should include two important caveats. "First, even though old mice lacking p16INK4a show enhanced stem cell function, they do not live longer. This is because p16INK4a is an important cancer-suppressor gene, and mice lacking p16INK4a develop more cancers than old, normal mice," he said.

"Secondly, in all three studies, p16INK4a loss was associated with an improvement in some but not all of the consequences of aging. There are clearly things in addition to p16INK4a that contribute to aging. We don't yet know what they are."

However, the gene may prove immediately useful as a biomarker for studies of aging, Dr. Sharpless said. "If you were going to calorically restrict yourself or take green tea or resveratrol every day for years in an effort to prevent aging, wouldn't you like some evidence that these not entirely benign things were having a beneficial effect? Now we have a biomarker that can directly test the effects of such things," he said.

UNC filed a patent on the use of p16INK4a as a biomarker of human aging in 2004. Co-inventors of the patent are Drs. Sharpless and Krishnamurthy.

Other authors of the UNC study are UNC graduate student Matthew R. Ramsey; Dr. Keith L. Ligon, pathologist at Brigham and Women's Hospital and Harvard Medical School in Boston; Chad Torrice, technician in the Sharpless lab; Dr. Angela Koh, postdoctoral scientist at the Joslin Diabetes Center and Harvard Medical School; and Dr. Susan Bonner-Weir, also of the Joslin Diabetes Center and Harvard Medical School.

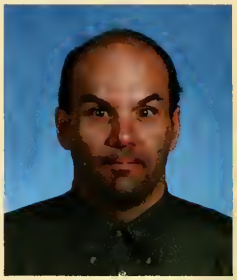
The UNC research was supported by grants from the Sidney Kimmel Cancer Foundation for Cancer Research, the Paul Beeson Physician Faculty Scholars in Aging Research Program, the Ellison Medical Foundation, and the National Institute of Aging, a component of the National Institutes of Health.

Study reveals how cells destroy faulty proteins in cystic fibrosis

The cellular system that degrades faulty proteins created by the cystic fibrosis gene has been identified by UNC scientists. Turning off the degradation system allows some proteins to regain their proper shape, offering a new avenue for treatments aimed at curing the disease.

Cystic fibrosis (CF) is a fatal disease caused by a defective gene that produces a misshapen form of the protein cystic fibrosis transmembrane conductance regulator (CFTR). People with cystic fibrosis do not have enough CFTR for their cells to work normally because their bodies quickly destroy the mutant protein.

"Most cases of CF are caused by the inability of faulty CFTR to get in the correct shape, which leads cells to place it in the trash bin," said senior author Dr. Douglas Cyr, professor of cell and developmental biology at UNC School of Medicine. "Our research helps define the basic mechanism for CF and identify targets for the development of therapeutics designed to get CFTR into shape and allow it function normally in the lung."



CYR

The results, published Aug. 11 in the journal *Cell*, point to several possible targets for the development of new treatments aimed at stopping the disease, the researchers said.

Scientists have known for some time that treatment of cultured cells with compounds known as chemical chaperones can increase the fitness of misshaped CFTR and get it into proper shape. "If we can figure out how to get CFTR into the right shape, we can cure the disease," Dr. Cyr said.

To better understand how to fix CFTR, Cyr's research team at the UNC Cystic Fibrosis Center focused on identifying the cellular system that disposes of faulty CFTR. Investigators identified cell components that specifically recognize misshapen CFTR and drop it in the molecular trash bin. The team found that turning off these components – the cell's trash collectors – extends the life of faulty CFTR proteins and thereby enables some of it to assume a functional shape.

The trash collectors newly identified by the UNC team are two ubiquitin ligases, proteins that recognize misshaped regions of CFTR and tag them with a degradation signal know as ubiquitin. The ubiquitin tag tells the cell to destroy the marked CFTR, a process overseen by a destroyer called the proteasome. This trash system is known as the ubiquitin proteasome pathway.

"We've identified the trash collectors that recognize misfolded proteins, decide if they might be toxic to the cell and mark them with ubiquitin. The ubiquitinated proteins, including faulty CFTR, are then degraded or shredded by the proteasome," Dr. Cyr said.

"Understanding this pathway gives us greater insight into what's wrong with the protein – information that will help people design better therapeutics for the disease."

Study co-authors, all of the UNC Cystic Fibrosis Pulmonary Research and Treatment Center, include J. Michael Younger, graduate student and first author; postdoctoral researchers Drs. Liling Chen, Meredith F.N. Rosser, Emma L. Turnbull and Chung-Yan Fan; Hong-Yu Ren, technician; and Dr. Cam Patterson, professor of medicine, cardiology division chief and director of the Carolina Cardiovascular Biology Center.

The UNC Cystic Fibrosis Pulmonary Research and Treatment Center is a multidisciplinary group focused on the pathogenesis and therapy of cystic fibrosis and other lung diseases. It has one of the largest clinical programs in the country, with more than 500 patients in pediatric and adult programs.

The study was funded by the National Institute

of General Medical Sciences, part of the National Institutes of Health, the Cystic Fibrosis Foundation and the American Heart Association.

Study identifies substances in grapefruit juice that may interact dangerously with some drugs

New UNC research has identified and established the substance in grapefruit juice that causes potentially dangerous interactions with certain medications.

For almost a decade, people have been told by their doctors and pharmacists to avoid grapefruit juice if they are being treated with certain medications, including some drugs that control blood pressure or lower cholesterol. Studies have shown that grapefruit juice can cause more of these drugs to enter the blood stream, resulting in undesirable and even dangerous side effects.

The drugs affected by grapefruit juice usually have some difficulty entering the body after they are consumed because an intestinal enzyme, CYP3A, partially destroys them as they are absorbed. Grapefruit juice, but not other commonly consumed fruit juices, inhibits this enzyme, allowing more of these drugs to enter the body.

It was originally assumed that the ingredients responsible for drug interactions were the flavonoids that give grapefruit juice its bitter taste.

The new study shows that a group of chemicals called furanocoumarins are the likely culprit.

"This is the best evidence to date that furanocoumarins are the active ingredients in grapefruit juice that cause the interaction with medications," said Dr. Paul Watkins, the Dr. Verne S. Caviness distinguished professor of medicine and director of UNC's General Clinical Research Center (GCRC). Watkins led the study team.

A report of the new findings appeared in the May issue of the *American Journal of Clinical Nutrition*.

To determine whether furanocoumarins are responsible for grapefruit juice-drug interactions, Dr. Watkins worked with scientists at the Florida Department of Citrus to selectively remove only the furanocoumarins from the juice.

He and his collaborators then studied the effect of the whole juice versus furanocoumarin-free juice on the ability to affect absorption of felodipine, an anti-hypertension drug known to interact with grapefruit juice

"And we found that removing the furanocoumarins from grapefruit juice entirely got rid of this interaction," Dr. Watkins said.

In this randomized study, 18 healthy volunteers took 10 milligrams of felodipine with each of three juices: orange juice, regular grapefruit juice, and grapefruit juice devoid of furanocoumarins. Blood was collected over 24 hours to measure felodipine blood levels. One week elapsed between each felodipine-juice "treatment."

The study found that in contrast to whole grapefruit juice, the furanocoumarin-free grapefruit juice behaved like orange juice and did not cause an interaction with felodipine.

Dr. Watkins notes that there are several implications of this work.

"First, it should now be possible to market the furanocoumarin-free grapefruit juice to patients who would otherwise need to avoid grapefruit. In addition, it should be possible to screen new foods for the potential for drug interactions by determining whether they contain furanocoumarins.

"Finally, it may be possible to add furanocoumarins to formulations of certain drugs that tend to be poorly or erratically absorbed to improve their oral delivery."

Co-authors with Watkins are Drs. Mary F. Paine, research assistant professor in the UNC School of Pharmacy; Dr. Wilbur W. Widmer, scientist with the Citrus and Subtropical Products laboratory, U.S. Dept. of Agriculture; Dr. Heather L. Hart, GCRC scientist; Susan N. Pusek, GCRC's director of faculty training; Dr. Kimberly L. Beavers, former postdoctoral scientist in the GCRC; Anne B. Criss, GCRC technician in Watkins' laboratory; and Drs. Sherri S. Brown and Brian F. Thomas of the Research Triangle Institute.

Support for the study came from the National Center for Research Resources and the National Institute of General Medical Sciences.

Parise appointed chair of biochemistry and biophysics at UNC

Dr. Leslie V. Parise, professor and vice-chair of Pharmacology at UNC-Chapel Hill, has been appointed chair of UNC's Department of Biochemistry and Biophysics.

PARISE

She received her undergraduate degree in chemistry and biology from the University of Illinois, Urbana-Champaign in 1976 and her PhD in pharmacology from the University of Illinois-Chicago in 1982. From 1982-1988, she was a postdoctoral researcher and then staff research investigator with the Gladstone Research Institute at the University of California, San Francisco, where she studied platelet biochemistry.

Dr. Parise joined the UNC faculty in 1988 as assistant professor in the department of pharmacology and was appointed full professor in 1999 and vice-chair of pharmacology in 2002. A member of the UNC Lineberger Comprehensive Cancer Center and the Center for Thrombosis and Hemostasis, Dr. Parise also serves on several editorial boards including The Journal of Cell Biology and Blood. She is a recognized leader in cardiovascular research involving blood platelets, a cause of heart attack, stroke and sickle cell disease. Her research is specifically focused on the structure and function of adhesion receptors and associated proteins that contribute to both cardiovascular disease and cancer.

Dr. Parise now heads a biochemistry and biophysics department in which PhD students and postdoctoral scientists train in more than 40 different laboratories engaged in cutting-edge biomedical research. Nearly 30 professors represent the core faculty, with roughly a dozen other faculty holding joint-appointments from other departments. Among the core faculty are members of the National Academy of Sciences, the American Academy of Arts and Sciences and the Howard Hughes Medical Institute.

Faculty members have also won numerous prestigious awards including from the Keck, Beckman, Sloan, Pew and Searle foundations and from the American Association for Cancer Research.

Among biochemistry departments, the department is ranked seventh nationally in grants from the National Institutes of Health.

Lineberger announces faculty appointment

Howard McLeod, PharmD, has accepted a faculty position at the UNC Lineberger Comprehensive Cancer Center.

In August, Dr. McLeod joined UNC Lineberger and the UNC-Chapel Hill School of Pharmacy as the Fred Eshelman Distinguished Professor of Pharmacy, director of the new UNC Institute for Pharmacogenomics and Individualized Therapy and a member of the UNC Lineberger Comprehensive Cancer Center.

Dr. McLeod, an internationally recognized expert in the pharmacogenomic analysis of cancer therapeutics, comes to UNC from the Alvin J. Siteman Cancer Center at Washington University School of Medicine in St. Louis, MO. He is the author or co-author of more than 260 scientific articles and is a member of the FDA Subcommittee on Clinical Pharmacology. He serves on the Scientific Program and Cancer Research Committees for the American Society for Clinical Oncology and is on the editorial board for seven scientific journals. Dr. McLeod is a principal investigator in the National Institutes of Health Pharmacogenetics Research Network.

Dr. McLeod earned his B.S. degree from the University of Washington School of Pharmacy and his PharmD degree from the Philadelphia College of Pharmacy and Science.

Richard Goldberg, MD, associate director of UNC Lineberger, said, "We are very excited to welcome Dr. McLeod to the UNC community. He and his team of scientists are conducting innovative work in the emerging field of personalized medicine. The intellectual environment at UNC and the investment that the university and state of North Carolina are making in this area of inquiry will enable his practical application of this field to clinical patient care."

Dr. Goldberg is also chief of the division of hematology/oncology in the UNC School of Medicine and medical director for the N.C. Cancer Hospital.

UNC Health Care-managed Chatham Hospital names longtime UNC official its new CEO

Chatham Hospital in Siler City, N.C., has named Carol B. Straight its new chief executive officer, effective immediately. The Chatham Board of Directors appointed Straight in October.

STRAIGHT

Straight is a 31-year employee of UNC Health Care in Chapel Hill, which this summer took over the management of Chatham Hospital.

"I am excited and am pleased to have the opportunity to be part of Chatham Hospital's future. The construction of a new hospital for this rapidly growing county is very exciting," Straight said.

A graduate of West Virginia University, Straight joined UNC Health Care in 1975 as a medical technologist in the Radioassay-Endocrine Laboratory. She held various supervisory positions in the laboratories, and in 1989 was named administrative director of the McLendon Clinical Laboratories and was responsible for 18 lab sections, 30 physician directors, 14 post-doctoral fellows and 23 resident physicians.

Most recently, Straight has served as a network development specialist for UNC, focusing on physician relations and external affiliations of UNC Hospitals.

Straight will play a significant role in guiding Chatham Hospital through the upcoming construction of its new $19 million state-of-the-art hospital, scheduled to open in 2008.

"We are delighted to have Carol at the helm of Chatham Hospital," said Gary L. Park, president of UNC Hospitals. "Her many years at UNC and representing us in the field have made her well-known throughout North Carolina health care. She will no doubt prove a guiding force and positive influence on Chatham, especially during these upcoming years of important transition into its great new facility."

CME program achieves accreditation with commendation

The UNC School of Medicine's Continuing Medical Education program was recently reaccredited by the Accreditation Council for Continuing Medical Education (ACCME) and was awarded the status of "Accreditation with Commendation."

Of the nearly 750 certified CME programs nationwide, only approximately 10 percent receive "Accreditation with Commendation" status from the ACCME. Congratulations and thanks to the outstanding staff in the CME office who made this honor possible!

The CME program received "Exemplary Compliance" honors in the areas of needs assessment, program evaluation and administration. As its reward, the CME program will be visited for reaccreditation in six years instead of the usual four years.

In its report on UNC CME program, the ACCME said, "The provider (CME office) has an innovative and creative mechanism(s) in place to measure the effectiveness of its overall CME program with evidence that improvements are made on a regular basis...multiple examples of this process leading to significant changes and improvements are present throughout the self-study report."

40s

Charles H. Edwards Jr., CMED '42, is retired from his surgery practice and living in Washington, D.C. Dr. Edwards reports that he is "enjoying spending more time with my sons and three grandsons and other leisure activities."

Franklin G. Norris, CMED '49, is retired and living in Orlando, Fla. He is currently pursing college courses at the University of Central Florida. Dr. Norris says he "enjoys the many fine memories of UNC."

50s

Garland E. Wampler, MD '56, is retired after 41 years of family practice. On June 10, 2006, Dr. Wampler celebrated his 50th wedding anniversary.

70s

Michael Moore, MD '70, recently accepted the position of chief medical officer at Danville Regional Medical Center in Danville, Va. Dr. Moore has practiced medicine in the Dan River Region for over 25 years and was named the American Heart Association's national Physician of the Year in 2004.

Kirby Primm, MD '70, is a cardiologist at Wenatchee Valley Medical Center in Wenatchee, Wash. Recently Dr. Primm was elected president of the North Pacific Society of Internal Medicine, an organization of internists and medical subspecialists from Washington, Oregon, Idaho and British Columbia.

David A. Rendleman, MD '70, retired June 1, 2006 from orthopaedic surgery practice in Raleigh, N.C.

80s

Richard Padgett, MD '88 was recently appointed as the executive medical director of the Oregon Heart & Vascular Institute at Sacred Heart Medical Center in Eugene, Ore. The Institute is one of the busiest and most respected cardiac and vascular centers in the Northwest.

90s

Richard J. Pollard, MD '91 was recently named president of the North Carolina Society of Anesthesiologists. Dr. Pollard was also elected as a board member of the Political Action Committee of the American Society of Anesthesiologists for 2006. He is currently chief of neuroanesthesiology at Carolinas Medical Center in Charlotte.

James McCarthy, MD '91 was recently selected by Philadelphia Magazine as "Top Doc" for his specialty in treating lower extremity surgery in children and arthroscopic surgery-hip surgery. Dr. McCarthy is currently assistant chief of staff and medical director of the Motion Analysis laboratory at Shriners Hospital for Children and assistant professor at Temple University School of Medicine.

Jane Deveau Pugh, MD '96, and Chris Pugh, MD '97, welcome a son Nicholas Christopher Pugh, who was born January 17, 2006. The Pughs live in Wilson, N.C.

North J. Davis, MD '96, and **Carolyn C. Davis, MD '96,** and their three children Legend, 8, Fairchild, 5, and Journey, 1, have relocated to Gulf Breeze, Fla. North has joined a private practice pathology group in Pensacola, Fla.

Sherene Shakib Min, MD '97, has been promoted to director of antivirals discovery medicine in clinical pharmacology and discovery medicine at GlaxoSmithKline. Dr. Min has been with the company for two and a half years.

00s

Stephanie Beers Piatt, OT Masters '00, lives in Charlotte, N.C. and does hypo therapy for special needs children. She is married and has two children.

Steve North, MD '00 and **Jennifer Larson North, MD '00** have moved to Spruce Pine, N.C. During the past six years in Rochester, Jen completed an internal medicine residency, served as a chief resident and completed a fellowship in Geriatrics. Steve completed a family medicine residency, served as a chief resident and completed an adolescent medicine fellowship and masters' in public health. Jen will be working in the emergency department at Spruce Pine Community Hospital and Steve will be working at the Bakersville Community Medicine Center. They have one son, Eli.

Housestaff

David W. Gregory, MD (HS '69-'70) received the Oscar E. Edwards award for volunteerism and community service, by the American College of Physicians at the annual convocation held in Philadelphia.

Peter M. Zawadsky, Jr., MD (HS '68-'69), is currently an Assistant Professor of Pediatrics at the Uniform Services University of the Health Sciences in Bethesda, MD. He retired fro m the U.S. Army Medical Corps in 1994 at the rank of Colonel after 26 years of active service.

Deaths

Marian "Mimi Isbey Butterfield, MD '90, died June 26, 2006. Her last residence was Durham, NC where she was an Associate Professor at Duke in the department of psychiatry.

Walter Skellie Hunt Jr, CMED '37, died August 5, 2006 in Wilmington, N.C. He finished his medical degree at Northwestern University Medical School in 1939. Dr. Hunt retired in 1980 from Raleigh Orthopaedic Clinic, which he helped establish in 1959.

Andrew Kaplan, MD (HS '85-'88) died June 28, 2006. He and his wife Carol Golin, MD '89 returned to Chapel Hill in 1998 where he was appointed as a faculty member in the division of infectious diseases in the Department of Medicine.

John "Jack" A. Kirkland, CMED '50, died September 7, 2006 at the age of 79. Dr. Kirkland practiced obstetrics and gynecology in Wilson from 1959-1997. Dr. Kirkland was president of the UNC Medical Alumni Association from 1979-80 and was awarded the Distinguished Service Award in 1989. From 1987-1992 he served on the Board of Directors, as well as Chairman, for the UNC Hospitals.

James Joseph Lockwood, MD '87, died May 3, 2006. His last residence was Portsmouth, Va., and his specialty was family practice.

George G. Lothian, MD '68, died May 3, 2006. His last residence was Reidsville, N.C. and his specialty was family practice.

Richard A. Mangum, MD '64, died June 29, 2006. He practiced in Creedmoor, N.C. were he was the only doctor for many years. His specialty was family practice.

Gerald T. McMahon, MD '57, died February 4, 2006. His last residence was Flagstaff, Ariz., and his specialty was obstetrics and gynecology.

Thomas S. Perrin, Jr, CMED '42, died May 2, 2006. His last residence was Charlotte, N.C. He finished his medical degree at Johns Hopkins Medical School and graduated second in his class. During his career he co-founded what is now Mecklenburg Medical Group. His specialty was internal medicine.

Wanda Mitchell Peterson, MD '83, died November 20, 2005. She operated two medical practices, one in Yadkinville and the other in Winston-Salem, N.C. Her specialty was family practice.

Beecher W. Sitterson, CMED '42, died January 29, 2006. His last residence was Columbus, N.C. and his specialty was internal medicine.

James T. Vernon, CMED '43, died Nov. 10, 2005. His last residence was Morganton, N.C. and his specialty was pediatrics.

Clinton W. Wilson, MD '57, died May 13, 2006. His last residence was Saint Joseph, Mich. and his specialty was family practice pediatric cardiology.

William Robert Story, MD '58, died Thursday, Jan. 12, 2006. While in medical school, he was president of the Whitehead Society. He interned at Walter Reed Army Hospital in Washington, D.C., and spent the next six years as a doctor in the U.S. Air Force as a major. His residency in urological surgery was completed at Charlotte Memorial Hospital (now Carolinas Medical Center), and he entered private practice with the McKay Medical Group, Dr. Haynes Baird and Dr. Homer Justis, later known as Charlotte Urology, where he was in practice for 30 years.

Oliver Wayne Williamson, CMED '46, died May 12, 2005. His last residence was in Wagener, S.C. He finished his medical degree at the University of Maryland School of Medicine and his specialty was psychiatry.

Pioneer in humane treatment for autism, Eric Schopler, dies

Dr. Eric Schopler, whose pioneering techniques in humane and effective treatment of autism have been replicated around the world, died July 7, 2006, of cancer. He was 79.

SCHOPLER

A professor of psychiatry and psychology at the University of North Carolina at Chapel Hill for more than 40 years, Schopler was one of the first to establish that autism is a treatable neurological disorder. Previously, parents were blamed for causing what was then held to be a psychological problem.

Schopler co-founded (in 1971) and directed the UNC-Chapel Hill division TEACCH - Treatment and Education of Autistic and related Communication-handicapped CHildren. A division of the psychiatry department in the UNC-Chapel Hill School of Medicine, TEACCH enlists parents as co-therapists in customized treatments that help autistic children gain critical life skills.

In North Carolina, TEACCH grew from an initial three clinics and 10 classrooms in public schools to nine clinics and more than 300 classrooms today. The clinics are in Asheville, Chapel Hill, Charlotte, Fayetteville, Gastonia, Greensboro, Greenville, Raleigh and Wilmington.

Experts from across the United States and around the world have visited Chapel Hill to study the program, replicated now in nations including Brazil, Denmark, Egypt, France, Israel, Italy, Japan, Spain and Saudi Arabia.

"Dr. Schopler's work erased the burden of unjustified guilt borne by many families and led to meaningful, productive lives for people with autism," said Dr. Gary Mesibov, current TEACCH director. "For more than 35 years, the treatment that he developed has been the most widely used approach to autism in the world."

The TEACCH model was recognized by professionals in psychiatry through its inclusion in the treatment volume of "Diagnostic and Statistical Manual of Mental Disorders." In 1991, Schopler joined an Autism Society of America meeting with then-President George Bush on the needs of people with autism.

Schopler wrote more than 200 books and articles on autism and related disorders. From 1974 through 1997, he edited the Journal of Autism and Developmental Disorders.

TEACCH grew out of a five-year pilot project at UNC in the 1960s, funded by the National Institutes of Mental Health. Schopler and then-medical resident Dr. Robert Reichler (now of Seattle) proved the effectiveness of new treatment methods. Parents involved in the pilot successfully petitioned the state legislature for permanent funding. Today, support comes from the state, fees for services, grants and donations.

Under Schopler's leadership, TEACCH added a training program for parents and professionals; internship and post-doctoral programs for university students and graduates; and an employment program for adults with autism.

Schopler was born in Germany in 1927. His family moved to the United States in 1938 in the face of the Holocaust. They settled eventually in Rochester, N.Y. Schopler often said that his brush with the Holocaust led to his life's work with autism, because it fostered his interest in why some individuals and groups are excluded and misinterpreted by others.

Schopler earned three degrees at the University of Chicago, completing a doctorate in clinical and child psychology in 1964. His work with autism began there, with research for his dissertation, which showed that children with autism relied more on touch and smell than on sight and sound.

His awards included the American Psychiatric Association's Gold Achievement Award in 1972; the O. Max Gardner Award in 1985, from the Board of Governors of the 16-campus University of North Carolina system, for his "great contribution to the welfare of the human race"; the North Carolina Award, the state's highest honor, in 1993; and the Autism Society of North Carolina's Lifetime Achievement Award in 2005.

The American Psychological Association honored Schopler with its Distinguished Professional Contributions to Public Service Award in 1985 and Award for Distinguished Contributions to the Advancement of Knowledge and Service in 1997. This year, the American Psychological Foundation will honor him with a Gold Medal for Life Achievement in the Application of Psychology.

At home near Mebane, Schopler raised chickens, horses, cows, rabbits and catfish with his family. "He always had an idea of something new and fun to try," said his son, Tom, of Chapel Hill. "Whether he wanted to build a barn or a log cabin or plant an orchard, he always approached his endeavors with an excitement and energy that inspired others."

Schopler is survived by his wife, Margaret Schopler, and his children, Bobby, Tom and Susie Schopler, all of Chapel Hill; his sister, Irene Solomon, of Escondido, Calif.; seven grandchildren and numerous nieces and nephews.

Last year friends and family established an Eric Schopler Lifetime Achievement Award for leadership in understanding and treatment of autism, first awarded to Schopler, and a fund to create an Eric Schopler Endowed Chair in Autism Research at UNC-Chapel Hill.

UNC mammography scientist Pisano honored by *Ladies' Home Journal*

Dr. Etta Pisano, professor in the departments of radiology and biomedical engineering and vice dean of the University of North Carolina at Chapel Hill School of Medicine, is one of seven recipients of a new award presented by *Ladies' Home Journal*.

The Health Breakthrough award recognizes leading medical professionals who are making life-saving and life-enhancing discoveries in research, diagnostics and treatment – with results that have significantly helped women and families.

Pisano and the other recipients were honored at a luncheon sponsored by the magazine in New York City.

Pisano is director of the Biomedical Research Imaging Center at UNC and she is a member of the UNC Lineberger Comprehensive Cancer Center. She was cited for her pioneering research showing that digital mammograms are as reliable as film mammograms and are better at finding breast cancer in young women and those with dense breast tissue. Digital screening allows radiologists to adjust contrast and to zoom in on suspicious areas, which requires less radiation than film and allows files to easily be sent to another doctor for a second opinion.

To determine the effectiveness of digital screening, Pisano launched an estimated $26 million study in 2001 called the Digital Mammographic Imaging Screening Trial (DMIST). Pisano said she practically started preparing large-scale studies to improve cancer care at age 15, when her mother died of a brain tumor.

DMIST was funded by the National Cancer Institute (NCI) and was conducted by the American College of Radiology Imaging Network (ACRIN). It included scientists at 33 sites in the United States and Canada. Approximately 43,000 women enrolled in the trial. Trial results were reported in the *New England Journal of Medicine* in October 2005.

Pisano and the other honorees, selected from a candidate list of nearly 100 accomplished professionals, will be featured in the September issue of *Ladies' Home Journal*, on sale Aug. 8.

Photo credit: Rohanna Mertens / Ladies' Home Journal

Dr. Pisano, center with her award, is flanked by "Weekend Today" co-anchor Campbell Brown, left, and Ladies' Home Journal *Editor-in-Chief Diane Salvatore. At far left is actress Andie MacDowell.*

Molina elected president of North Carolina Radiological Society

Paul L. Molina, MD, professor of radiology, residency program director, and vice chair of education for the Department of Radiology, has been elected president of the North Carolina Radiological Society. The North Carolina Radiological Society, comprised of over 900 radiologists, radiation oncologists, and medical physicists throughout the state, provides pertinent and timely information on scientific and socioeconomic issues relating to the practice of radiology and the delivery of comprehensive radiological health services.

Sheldon named editor-in-chief of e-FACS.org

George F. Sheldon, MD, professor of surgery and social medicine and former chair of surgery, is editor-in-chief of e-FACS.org, a new Web portal for members of the American College of Surgeons. An article Dr. Sheldon wrote about e-FACS.org was the cover story in the January 2006 issue of the Bulletin of the College of American Surgeons. Members may access the portal at www.efacs.org.

Kaufer elected to board of Lewy Body Dementia Association

Daniel Kaufer, MD, associate professor in the Department of Neurology, has been elected to the Medical and Scientific Advisory Board of the Lewy Body Dementia Association, a relatively new, national organization to promote education and research in Lewy Body Dementia.

KAUFER

Van Tilburg receives NIH award to support research into treating children's abdominal pain

Dr. Miranda van Tilburg, an assistant professor in the School of Medicine's Division of Gastroenterology and Hepatology, has received an award through the National Institutes of Health's "Research Supplements to Promote Diversity in Health-Related Research" program.

Her award is a $296,291 supplement to an award given to the UNC Center for Functional GI & Motility Disorders from the National Institute of Diabetes and Digestive and Kidney Diseases. The supplemental award provides up to two years of funds to promote re-entry into biomedical and behavioral research careers.

Van Tilburg earned her Ph.D. at Tilburg University in the Netherlands and completed postdoctoral training at Duke University Medical Center. In 2001, she left her research career because of childbearing and child-rearing demands. In 2002, she returned to work part-time at UNC in collaboration with Dr. William E. Whitehead, co-director of the UNC Center for Functional GI & Motility Disorders.

The re-entry program award will allows her to resume her career in behavioral research on a full-time basis. Van Tilburg's research is focused on the psychosocial aspects of pediatric functional gastrointestinal disorders. With funds from the grant, she will further develop and test a home-based guided imagery treatment for chronic abdominal pain of functional origin in children 7 to 15 years old.

Howard honored by Myasthenia Gravis Foundation for public awareness efforts

Dr. James F. Howard Jr., a distinguished professor in the UNC School of Medicine's department of neurology, has been honored by the Myasthenia Gravis Foundation of America for his public awareness efforts.

At the foundation's 2006 annual meeting in Tempe, Ariz. in May, Howard received the foundation's Public Awareness Award. According to the foundation, Howard was honored "for his continuous support of public awareness efforts," which included design of the foundation's Web site, his work on the foundation's medical/scientific advisory board and his participation in an episode of the television show "Mystery Diagnosis," which was aired nationally on the Discovery Health Channel in October and November 2005.That segment focused on the difficulties of a young woman with symptoms of weakness and fatigue and her struggle to

HOWARD

establish a diagnosis. The segment was filmed on location at UNC Hospitals and the patient's home.

Howard is immediate past chair of the foundation's medical/scientific advisory board and currently serves on several other foundation committees.

Cefalo receives award

Robert C. Cefalo, MD, PhD, received the American College of Obstetricians and Gynecologists' Distinguished Service Award, which was presented at the annual convocation in May 2006, in Washington, D.C.

Ramsden recognized

Dr. Dale Ramsden, assistant professor of biochemistry and biophysics at the University of North Carolina at Chapel Hill and UNC Lineberger Comprehensive Cancer Center researcher, has won the 2006 Leukemia & Lymphoma Society Scholar Award. The society's Career Development Program supports fundamental research in genetics, molecular and cell biology, molecular pharmacology, molecular virology and immunology. Career Development Scholars are highly qualified investigators who have shown a capacity for independent, sustained original investigation in the field of leukemia, lymphoma, and myeloma. These scholars are expected to hold independent faculty-level or equivalent positions and to have obtained substantial support for their research from a national agency. Scholar awards are for $110,000 per year for five years.

Strahl named a 2006 Jefferson-Pilot Award recipient

Dr. Brian Strahl, assistant professor of biochemistry and biophysics at UNC, has been named a 2006 Jefferson-Pilot Fellow. The annual award is given to promising junior faculty to explore new ideas in research, teaching or clinical treatment. The active term of the fellowship is four years, and the recipient receives $20,000.

special EVENTS

GRADUATION

THERE SHE IS...

Miss America 1958, Marilyn Van Derbur, left, discussed "Trauma and Recovery from Childhood Sexual Abuse" at the Carolina Club as part of the UNC Horizons Program's third annual conference for health care providers and other professionals working with victims of child abuse. A childhood incest survivor, she also signed copies of her book, Miss America By Day: Lessons Learned from Ultimate Betrayals and Unconditional Love.

SPRING ALUMNI WEEKEND

development

Record fundraising results for Medicine in 2006

Fundraising results of just over $57 million for fiscal year 2006 were a record high for the UNC School of Medicine and UNC Hospitals. The overall results were a strong 8.4 percent increase over the previous year; particularly impressive was the 29 percent increase in private gifts. The primary reason for this jump was a 43 percent increase in deferred gifts. The largest of these gifts was a $7 million estate commitment – the largest gift ever committed by an alumnus in the history of the school.

Results for the Carolina First campaign were impressive as well. Medicine not only increased its goal by $150 million (to $500 million from $350 million), but also reached 92 percent of that new goal, with gifts and pledges totaling more than $460 million. Medicine now has the largest campaign goal of any school in the university and the strongest results.

These results were achieved despite an unusual amount of staff changes during the year, including six new development officers, and a new president of the foundation, David Anderson, who began work in October 2005. For Anderson, the remaining eight months of fiscal year 2006 provided an opportunity to begin to develop relationships with top donors and to strengthen internal working relationships, both with university and health science colleagues, and with faculty and staff in the School of Medicine.

Anderson initiated many of the changes proposed early in his tenure. He restructured the organization to create a more horizontal and responsive structure with a clearer delineation of duties that addressed gaps in staffing. He also created a tier of five direct reports with two new positions. Departmental Programs provides management oversight to the smaller fundraising shops and a liaison to UNC Hospitals. Finance and Administration provides problem-solving leadership for all operational areas. A consistent annual planning process was initiated throughout medicine development, with specific program goals, as well as a tool for the monthly measurement of development staff activity.

The president also worked to create a leaner, more business-like, more engaged Medical Foundation board. To this end the class size was reduced to nine (from 22 or more), a job description with clear expectations was written, two new standing committees (Finance & Audit, Governance) and four new task forces (Investment Managers, By-Laws, Gift Acknowledgements, Development Communications) were created.

Another goal was to provide a higher level of customer service for external and for internal audiences. For external audiences, the endowment reporting process was revived, and planning for donor recognition events became more strategic and focused – as did plans for a donor recognition wall in Bondurant Hall. For internal audiences, annual reports of endowments held by the foundation were prepared for the first time for department chairs and center directors at the end of the fiscal year.

David Anderson of the Medical Foundation

The Medical Foundation worked closely with Public Affairs to improve the quality of publications that impact development efforts. The *UNC Medical Bulletin* was analyzed, resulting in a redesign of the magazine and in the allocation of a new position of editor to oversee the magazine. The Medical Foundation also led the effort to redesign and upgrade Medical Alumni promotional pieces.

Fiscal year 2006 was a year of growth and change for The Medical Foundation and provided a firm foundation for even stronger fundraising results in fiscal year 2007. For more information about the foundation and to find out how you can help, please visit www.medicalfoundationofnc.org.

UNC Lineberger dedicates Anita Goldrich Garden Courtyard

On Saturday, September 16, 2006, UNC Lineberger dedicated a beautiful new garden courtyard located in front of the UNC Lineberger building on West Drive. The garden was a gift from long-time UNC Lineberger Board of Visitor member Larry Goldrich '47 of Virginia Beach, Va. in memory of his late wife, Anita Goldrich. The garden was designed by landscape architect, Christine Hilt.

UNC receives $21.3 million from Gates Foundation

UNC has received a $21.3 million grant from the Bill & Melinda Gates Foundation to develop effective, inexpensive drugs to treat late-stage African sleeping sickness and visceral leishmaniasis – diseases that infect and kill hundreds of thousands of people in developing nations.

The grant supports the work of an international consortium led by Dr. Richard Tidwell, a professor in UNC's Schools of Medicine and Pharmacy and principal investigator for the project.

"The latest funding by the Gates Foundation provides us a unique opportunity to bring about substantial and lasting therapies for these deadly neglected diseases," Tidwell said.

Regina Rabinovich, president of the Gates Foundation's Infectious Disease Program, said, "Dr. Tidwell and his colleagues have already made important progress in developing new tools for these neglected diseases. We hope that their work will inspire other researchers to focus greater attention on these and other overlooked diseases that continue to afflict millions of people in the world's poorest countries."

The latest Gates Foundation grant will be used to pursue four specific goals:

- Develop a new oral drug to treat African sleeping sickness (trypanosomiasis) in patients suffering from the disease's second stage, in which the central nervous system is affected.
- Develop a new oral drug for treating visceral leishmaniasis.
- Evaluate, validate and co-develop drug candidates from outside the consortium for both African sleeping sickness and visceral leishmaniasis.
- Conduct a thorough and accurate assessment of the current status of African sleeping sickness, to aid in the development of a global access plan to ensure that new drugs are used most effectively in future disease control programs.

UNC has received two previous Gates grants for research on neglected diseases, one in May 2006 for $22.6 million, and another in December 2000 for $15.1 million. The consortium led by Tidwell is conducting a Phase III clinical trial of an oral drug for treating stage one African sleeping sickness with an oral drug called pafuramidine maleate, also known as DB289. If approved, it would be the first new drug for stage one African sleeping sickness in more than 50 years.

African sleeping sickness is passed from human to human by tsetse fly bites. It produces fever and lymph node inflammation, eventual impairment of the brain and nervous system in the late stage and, if not treated, death. The World Health Organization estimates more than 300,000 people are infected, and more than 60 million people in African countries including Angola, the Democratic Republic of the Congo and Sudan are at risk.

Leishmaniasis is caused by a parasite that can live in people, dogs and rodents. Spread by the bites of tiny sand flies, the disease causes lesions, severe disfigurement and, when the parasites invade internal organs, death. An estimated 12 million people in 88 countries worldwide have the disease, of which approximately 500,000 are internal organ infections. Most cases are reported in developing nations; Sudan and India have been especially hard-hit by a recent outbreak.

About the consortium

The consortium's advisory board is chaired by UNC's Dr. Frederick Sparling, with Dr. Terry Shapiro at Johns Hopkins, Dr. Ann Moore at the Centers for Disease Control and Prevention and Dr. Thomas Brewer of the Gates Foundation as board members. Those involved in the discovery of new drug candidates include Drs. David Boykin and David Wilson at Georgia State University; Dr. Michael Barrett at the University of Glasgow; Dr. Grace Murilla at the Kenya Trypanosomiasis

Research Institute; Drs. Steven Meshnick and J. Ed Hall of UNC's Schools of Public Health and Pharmacy, respectively; Dr. Karl Werbovitz at Ohio State University; Dr. Dennis Kyle at the University of South Florida; and Dr. Reto Brun at the Swiss Tropical Institute.

V Foundation awards $1 million cancer research grant to UNC and Duke

The V Foundation for Cancer Research announced a groundbreaking $1 million dollar collaboration Tuesday between UNC Lineberger Comprehensive Cancer Center and the Duke Comprehensive Cancer Center. The V Foundation will award a four-year, $1 million dollar cancer research grant to a collaborative research project for a study to individualize treatment for breast cancer between the two prominent cancer facilities, V Foundation CEO Nick Valvano announced. The grant will be given in honor of Jamie Valvano Howard, Jim Valvano's daughter who was diagnosed with breast cancer in August of 2005.

The V Foundation project will bring together the considerable expertise developed at UNC and Duke and enable them to work collectively. Together, researchers at both universities will work to dissect the complexity of breast cancer. The program will have a common goal of developing strategies for individualized treatment of breast cancer, building on the prior work and advances at both institutions together with new and novel programs. It involves two primary areas of collaborative focus and an important future clinical trial.

"The V Foundation board of directors decided to establish this grant in honor of Jamie to develop a model program that The V Foundation will be able to replicate throughout the country," Valvano said. "We hope this project will play a role in shaping how future breast cancer patients will be diagnosed and treated."

The cutting-edge project will further the studies of Dr. Charles Perou of UNC and Dr. Joseph Nevins of Duke. Dr. Perou is an expert in breast cancer research whose work has focused on patients with unlikely prognoses, as well as those with hereditary breast cancers. Dr. Nevins is a recognized leader in genetic cancer research. His studies have helped enable physicians to select the right anti-cancer drugs for each patient.

PEROU

"Over 13 years ago my father spoke the words, 'We need your help. We need money for research.' These words took on an entirely different meaning when a year ago, at the age of 33, I was diagnosed with breast cancer," said Howard. "Because of my family history, genetic testing was performed and it was discovered that I had inherited a genetic mutation that made me more susceptible to breast cancer, ovarian cancer and many other forms of the disease." Armed with this knowledge, Jamie's doctors were able to create a course of treatment and surgery that would increase her chances for survival and protect her from the disease in the future.

Howard went on to say, "I know without a doubt cancer research saves lives. I wish I could also say that I inherited my father's courage gene. And yet I could not imagine, when being faced with your own personal battle, having the fortitude and the inspiration to create an organization that would provide hope to so many others. And yet that's just what he did. And his legacy continues on. I'm overwhelmed The V Foundation for Cancer Research has established a research grant in my honor."

— Courtesy V Foundation

Hammonds make generous gift for Pediatric Oncology

When the internationally revered childhood cancer expert Denny Hammond, MD, and his wife, Polly, decided to make a $1.3 million planned gift, they chose the place where his career all began: UNC-Chapel Hill. In the 1940s when Dr. Hammond graduated from undergraduate school and attended the medical school, the UNC Lineberger Comprehensive Cancer Center was only a dream. But now, with the tremendous boost of the generous couple's planned gift, the nationally prominent cancer center and its pediatric oncology program can make large strides in research to understand better these cancers that affect the smallest and most vulnerable of our population.

Dr. Hammond has first-hand knowledge of the vital role private philanthropy plays in conquering childhood cancers. He was the founding director of the University of Southern California Comprehensive Cancer Center for its first ten years and was responsible for the creation of its scientific programs, the development of faculty and staff and the design and funding of the USC-Norris Cancer Hospital and Research Institute. Dr. Hammond is the past president and CEO of the National Childhood Cancer Foundation (now known as CureSearch), a charitable foundation dedicated to support research on improved treatments and cures for childhood cancer; the biology and causes of childhood cancer and programs of national public awareness and advocacy to benefit child with cancer.

Dr. Hammond remains a professor of pediatrics at the USC-Keck School of Medicine and devotes part-time to the university as associate vice president for Health Affairs and to the NCCF as a trustee.

Dr. Hammond with UNC's Dr. Julie Blatt and Dr. Shelley Earp.

from the president

Dear Alumni and Friends:

I wanted to talk to you about the exciting developments in the division of Radiologic Sciences within the department of Allied Health Sciences. As you may have already read in this issue's cover story, Allied Health has moved its offices into the beautiful expanded and renovated Bondurant Hall.

Named in honor Dr. Stuart Bondurant, a former Dean of the School of Medicine, this new building will serve as the new front door to welcome prospective allied health and medical students, visitors, and alumni, connecting them to UNC-Chapel Hill's medical education campus. Future generations of allied health professionals and physicians will attend classes and/or receive continuing education training in Bondurant Hall's lecture halls/seminar rooms and teaching/research laboratories. With the creation of a new food services area and the renovation of Berryhill Hall, Bondurant Hall will serve as the entranceway to a new "town square" for medical and allied health education.

Led by division director Joy Renner, Radiologic Sciences has welcomed a series of dramatic enhancements to its facilities. UNC has long served as a leader in the study of radiologic sciences offering a B.S. in Radiologic Science (the only one in the state), a certificate in Radiography funded from a collaborative agreement with UNC Health Care, Duke University Health System and Alamance Regional Medical Center and is only one of six programs in the United States offering a radiologist assistant post-baccalaureate certificate.

Foremost in the enhancements has been the expansion and renovation of a new teaching laboratory in the Burnett-Womack building. This laboratory comes with a state-of-the-art "pre-lab" student classroom completely equipped with wall-mounted computers and monitors. The new lab spaces will allow students to practice with equipment similar to what they will use in clinical settings and will enable them to better achieve the division's primary mission of improving image quality for optimal diagnosis, using as little radiation dose to the patient as possible.

Several corporations have made generous contributions to the lab, including Philips Corporation, who donated and installed an iSite PACS (Picture Archiving and Communications System) along with a three-year service agreement valued at close to $90,000. Siemens Medical Solutions donated and installed two pieces of radiographic and fluoroscopic equipment valued at $290,000 and FUJIFILM has donated a computed radiography system valued at $180,000. The division also receives continuing support from The Phyllis Ann Canup Pepper Radiologic Science Memorial Fund, most recently used to purchase a new film processor and other needed items for the lab. Thanks to these generous donations and improvements, the Division of Radiologic Sciences was recently able to conduct its first national digital imaging seminar for faculty in other allied programs across the county.

I look forward to providing you with updates regarding future developments in the Radiologic Sciences and Allied Health Sciences, as well as other areas within the UNC Health Care System. The next time you are in Chapel Hill, stop by to visit these new facilities and the many other projects that are expanding throughout the medical campus. It is our medical school, and while many things have changed, I am sure you will sense the same purpose and recognize some of the same people and places that educated, challenged and fostered us during our time in Chapel Hill.

Sincerely,

Ted Kerner, MD '85

CME/Events Calendar

Feb. 9
Psychiatry and the Law

Feb. 15
Current Management of Melanoma

Feb. 16-17
18th Annual Challenges in Geriatric Practice

March 21-23
31st Annual Internal Medicine Conference

April 13-15
Updates in Gastroenterology and Hepatology

April 20-21
Spring Alumni Weekend

April 26-27
Lipid Clinic Training Program

June 2
Medicolegal Seminar 2007

June 9
Fisher Society Meeting

June 14-17
Carolina Refresher Courses

June 15-16
GU Cancers

July 12-15
Heart Failure Management

Sept. 21-22
N.C. Cardiovascular Update

Nov. 2-3
Pelvic Pain

For more information, go to
www.med.unc.edu/alumni and
www.med.unc.edu/cme

Estate Planning Notice

Many individuals would like to make a major gift to the UNC medical center, but cannot commit current assets for such a purpose. Through a will, however, anyone can make a more significant gift than they might ever have thought possible by designating a specific sum, a percentage, or the residue of their estate for the benefit of the medical center.

To provide a bequest, simply include a paragraph in your will naming The Medical Foundation of North Carolina, Inc. as a beneficiary. For example:

"I give, devise and bequeath (the sum of $_____) or (_____ % of my estate) or (the residue of my estate) to The Medical Foundation of North Carolina, Inc., a 501(C)(3) created to maintain funds for the UNC medical center with principal offices located at 880 Martin Luther King, Jr. Blvd., Chapel Hill, North Carolina."

This language creates an unrestricted bequest for use by the medical center when and where the need is greatest, or you may specify that your gift be used for a particular purpose.

For further information on bequests, contact Jane McNeer at (919) 966-1201, (800) 962-2543, or Jane_McNeer@unc.edu.

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